YACHTING

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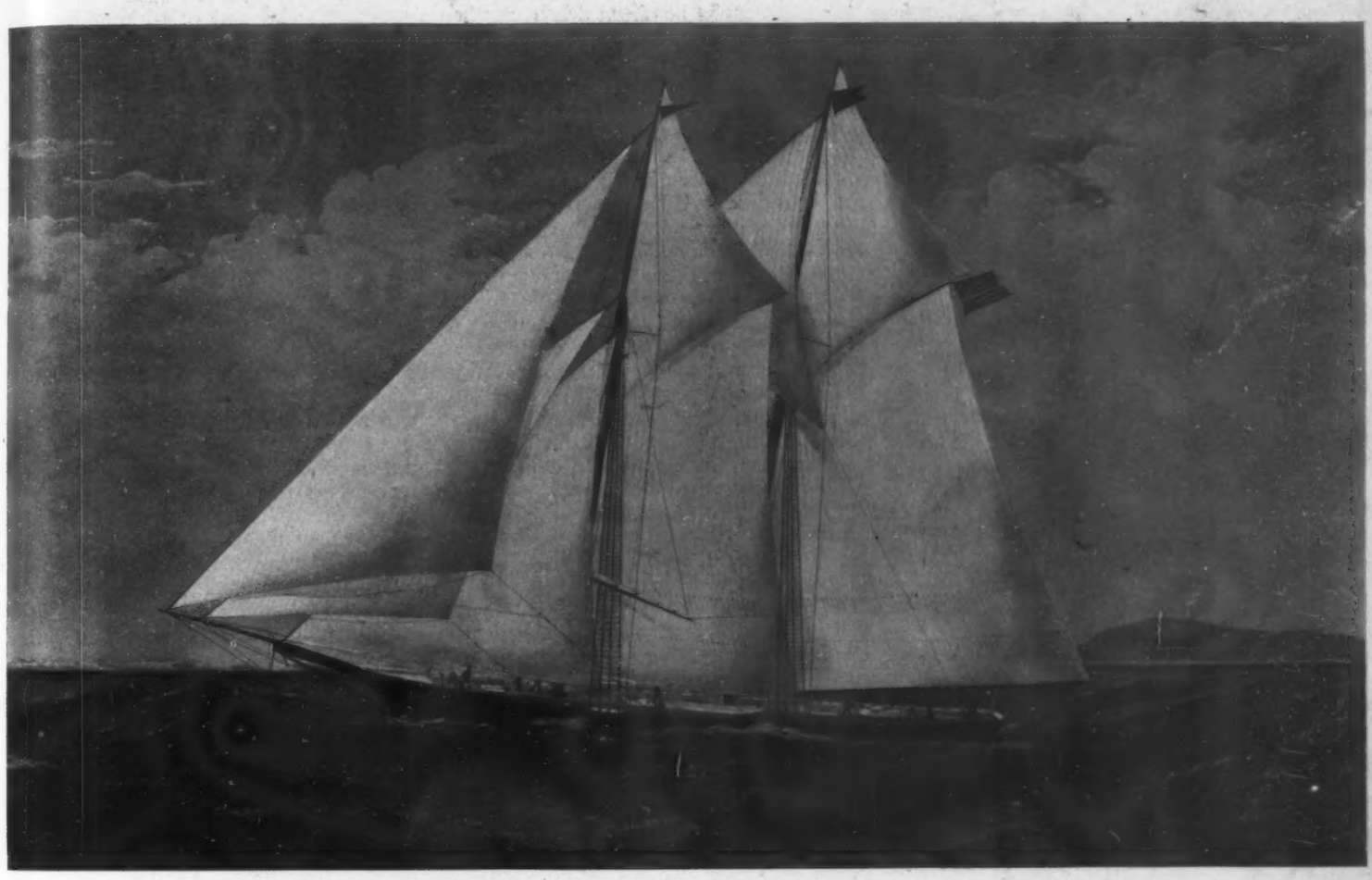


SAPPHO, QUEEN OF THE SEAS

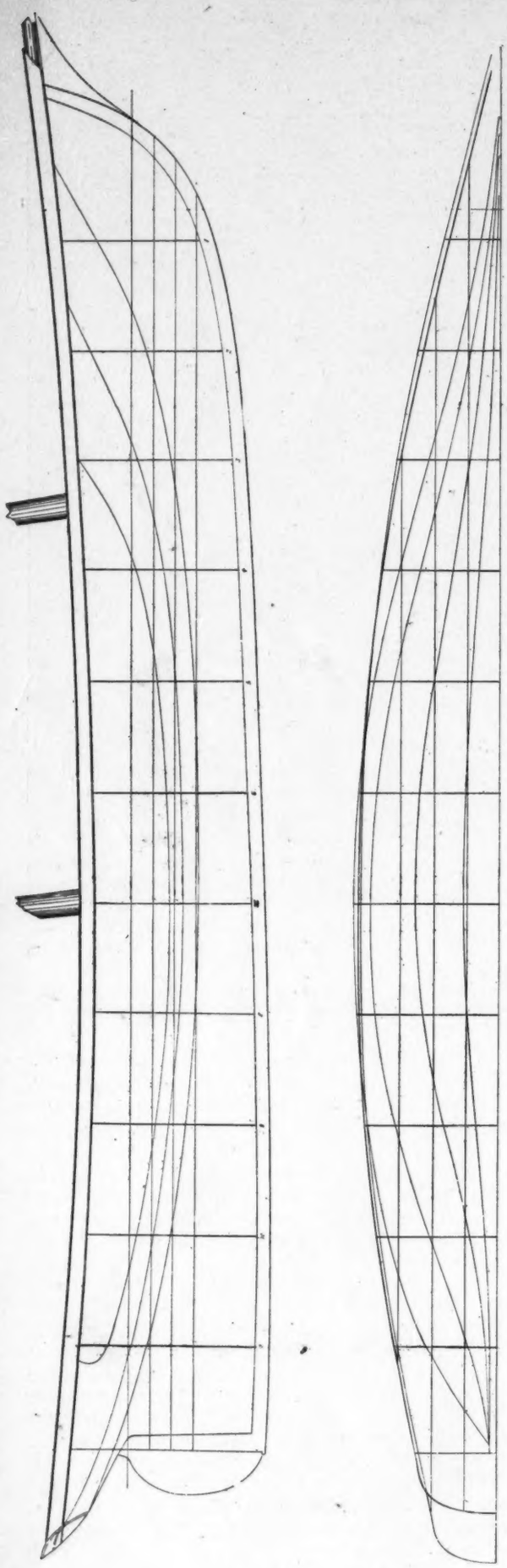
Sappho—A Failure that Won the America's Cup

By CHARLES H. HALL

THE history of this famous old schooner Sappho furnishes, among other things, an interesting instance of the uncertainties of yacht designing. As originally built she was a heart-breaking failure, and would hardly be remembered to-day except as one of the long list of mediocre craft that serve to swell the old yacht registers. After alterations had been made she showed wonderful change of form, and her racing record is one of the most successful of American yachts, so much so that it earned her the title of "Queen of the Seas."

Schooner racing was popular in the late sixties, when Sappho was built, the prevailing type being beamy, light-draught centerboard vessels, with an occasional keel boat to lend interest by contrast. The builders of that date did their own designing, or rather modeling, the naval architect not having then come into prominence. Sappho was built in 1867 by C. & R. Poillon, of South Brooklyn, a firm which had turned out many successful craft before, and whose yard continued in popular favor for a number of years. A great many fast, able and handsome vessels have left their ways. She was not built to the order of any yachtsman, but as a speculation. Captain R. F. Coffin says of her, in his History of American Yachting, "she was a deep keel vessel, with finer lines than had been the fashion, and her builders confidently expected she would prove faster than any yacht afloat."

Her lines, which are reproduced herewith from Dixon Kemp's *Yacht Designing*, show a vessel of clean form with rather a high bilge, moderately full garboards, considerable tumble home, and sweet fore and aft lines. The offsets for this drawing apparently were taken off the yacht after she had been "hipped," as will be told later. She is "all one boat"—no shoulders anywhere—and seems unusually well adapted for speed. Mr. Kemp, however, gives her rather grudging admiration, evidently preferring the heavier displacement type with which he was so familiar (and successful), but says, "It is probable that a vessel equal in linear dimensions with the American yacht Sappho could not be designed that would much exceed that vessel in speed, either in smooth water or among waves." He gives her dimensions as follows: Length on l.w.l. 122 ft., beam on w.l. 26.5 ft., mean draught 11.2 ft., displacement 232 tons, wetted surface 3,790 sq. ft., length of afterbody 50 ft., of forebody 72 ft. He gives the area of her lower sails as 9,060 sq. ft. Farther on he gives the sail area as 11,033 sq. ft. This latter figure for area seems to include the topsails. She had eighty tons of ballast, which is 34.5 per cent of the displacement, rather a low figure by comparison with the English racing craft, even of that day. Her tonnage, by the rules of the Royal Thames Yacht Club, was 376. The length of her mainmast is given as 73 ft., from deck to hounds, fore-



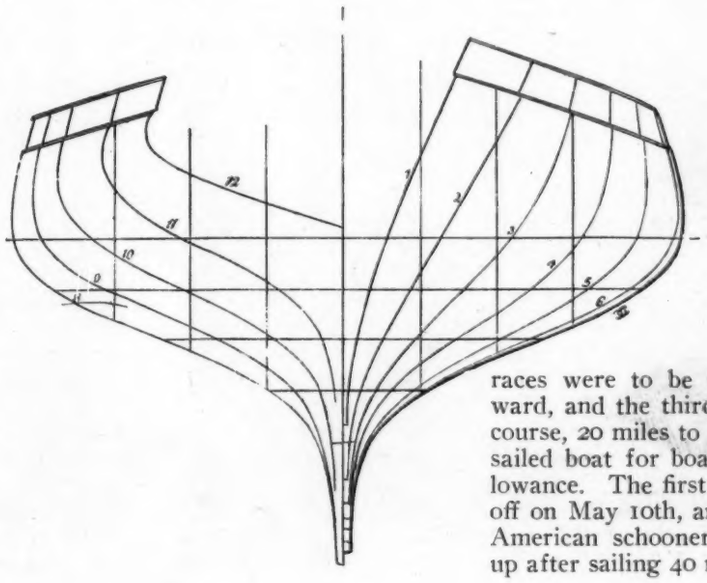
mast 68.6 ft., bowsprit 30 ft., jibboom 36 ft., and main boom 81 ft.

Mr. Kemp compares her inclined waterlines with those of her English competitors (to the disadvantage of the latter), and calls her an almost perfect illustration of the "wave line theory." As to speed, he says: "Sappho has been driven for hours together at the rate of 16 knots." This is explained in a footnote as having been done at sea with wind S.S.W. and course E.; strong wind, and smooth water, and he adds, "I have been witness that the Sappho has logged over 14 knots from headland to headland, and see no reason to doubt that she made 16 knots under the conditions named. In America the Livonia, in a match sailed against the Sappho, with a fine, whole sail breeze and smooth water, made 9 knots for four consecutive hours in beating to windward; the Sappho, on the other hand, made 9½ knots. It is not probable that any English schooner ever exceeded these performances." The book from which these extracts are taken was published in 1876. Mr. Kemp, as Mr. Ashbury's adviser, doubtless had many opportunities of studying the American schooner from astern and to leeward.

Sappho's maiden race took place off New London on August 7th, 1867, over a 35-mile course. Five sloops and seven schooners started, but on account of a thick fog and light wind but one finished within the time limit. On the 10th of the same month the Poillons entered her in a race off Newport, from Brenton's Reef to Block Island and return, finishing off Fort Adams. The schooner Palmer won, beating the Sappho by two minutes' elapsed time. Palmer rated 294.4 and Sappho 274.4. It was customary at this time to start races with all the contestants at anchor, as the flying start was just making itself known in our waters. We find no record of other races this season in which the subject of this sketch was entered.

Failing to find a purchaser in this country the Poillons decided to send the yacht abroad, and we hear of her in English waters in 1868. Tradition tells us that her captain was far from being a racing skipper, and that he entered her in races in direct disobedience of his orders. At any rate, she was entered in a race around the Isle of Wight, meeting a number of cutters and the schooners Aline and Cambria. In this event she was rated at 310 tons. She lost her jibboom in a puff, and was beaten by over an hour and three-quarters. After such a drubbing no purchaser could be found in England, so she was brought back to this side of the Atlantic.

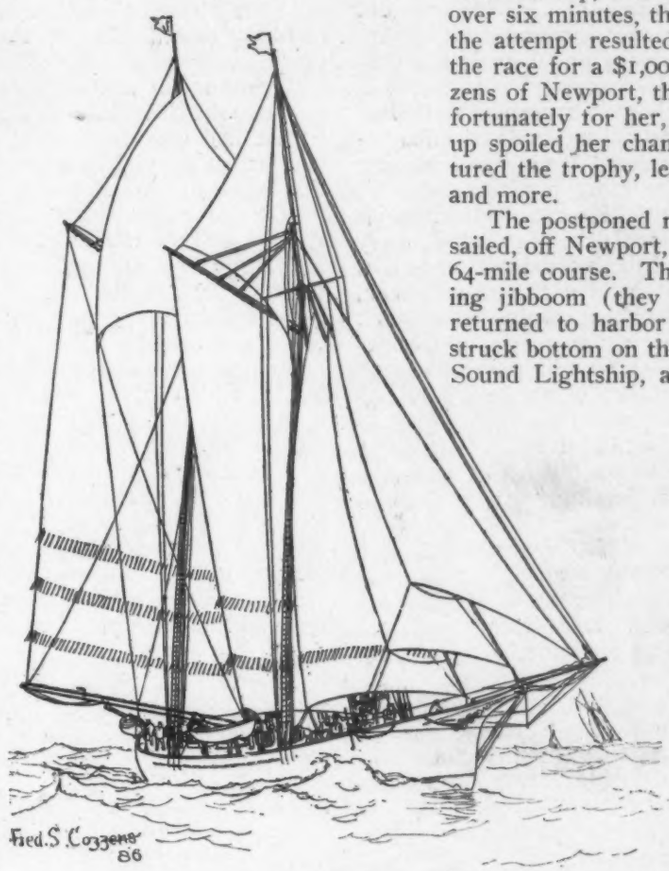
Here she was finally bought by Mr. William P. Douglass, who called in the well-known "Bob" Fish, of Bayonne, to prescribe a tonic. Bob Fish (under whom the late A. Cary Smith served when a young man) had turned out many fast yachts, and was a master hand at curing faults and "tuning up" generally. He hauled her out, stripped off the plank along the turn of the bilge, padded the frames and replanked her. By this process (called "hipping") her beam was increased seven inches on each side. Changes in gear and rigging were also made at this time. There was a great discussion about all this, the Poillons claiming that their original model was perfect, and that the alterations had spoiled her. The result of the races in the two previous seasons could hardly be considered to bear out the "perfect model" theory, and, as she began a winning career after the hipping, the builders' claims do not seem to be well founded.



Mr. Douglass promptly started the yacht for England, to regain her lost laurels, and arranged three races for a fifty guinea cup with Mr. James Ashbury's schooner Cambria. Two races were to be 60 miles to windward, and the third over a triangular course, 20 miles to a side. They were sailed boat for boat, without time allowance. The first of the series came off on May 10th, and was won by the American schooner, Cambria bearing up after sailing 40 miles of the course.

The second race was from the Nab to Cherbourg, 66 miles S.W., the wind being strong from W.S.W., and the yachts having two reefs in their mainsails. Mr. Ashbury, probably prompted by Mr. Dixon Kemp (according to Captain Coffin), protested that the course was "not dead to windward. The committee promptly disallowed the protest, and ordered the yachts to start, but the British schooner would not, so the American took a sailover. In the third contest, on the 17th, she won with ease, being an hour and forty minutes ahead at the second turn.

After this signal demonstration of her improved qualities no more races were to be had on the other side, and she returned across the Western ocean to her home waters. We find her entered for the Bennet cup race, off Newport, on September 8th, 1870. This was over a 64-mile course, and there were eleven schooners entered. Sappho lost her maintopmast and split her mainsail, the race being won by the Palmer (the same vessel that had defeated her in her first season), with the English schooner Cambria second. These two were the only ones timed at the finish. The Cambria was over here on an unsuccessful hunt for the America's cup, and was still owned by Mr. Ashbury, who seemed to keep his habit of making protests as the story of the cup races in '71 shows. On the 13th of October Sappho sailed a match race with the Cambria for a fifty guinea cup. The course was 20 miles to leeward and return, starting from Sandy Hook Lightship. The wind was strong from the northwest, and the Yankee boat finished 50 min. 50 sec. in the lead. No prize was awarded, however, as the time limit of five and a half hours was exceeded. The last match of the season, over an ocean course, was with the Dauntless, Sappho winning by 12 min. 45 sec.



SAPPHO, FROM A DRAWING BY F. S. COZZENS

The season of 1871 was quite a notable one for racing. A cup that was subscribed for by the residents of Cape May, and the Benson Cup, both $1,000 mugs, were raced for in July. Quite a fleet was attracted by these valuable prizes. Three New York schooners raced down, competing for a $500 cup on the way. The Wanderer, with Bob Fish on board, seemed to find conditions just to her taste, and beat the Dauntless by an hour, and the Sappho by fifteen minutes more. Next day, however, the Wanderer was nowhere, her trim having been altered overnight. On this occasion the Dreadnought made her debut. The Sappho won both $1,000 mugs easily, defeating the Columbia by over five minutes. On August 21st she entered a race over the Block Island course, and, though she made the best time, lost to the Madgie on allowance.

On August 23d the race for the Lorillard $1,000 cup was scheduled to be sailed over the "long course," off Newport, with a time limit of nine hours. The fog was so thick on the morning of the race that only three schooners came to the line, and the committee decided to postpone the contest. Mr. Douglass, however, made up his mind to go over the couse, as there was a fine breeze. Captain Coffin, who was aboard, says, "She started at 12h. 12m., with wind southwest, and we beat down to the buoy, heading south on one tack and west on the other, the yacht going a nice, clean full, and doing better, I thought, than if she had been racing. That celebrated racing skipper, 'Sam' Greenwood was at the wheel, and he had a way, I thought, of pinching the Sappho too much. She would work in seven points; but for her best work she required eight. Given a good, clean full within four points of the wind, she was the smartest vessel in the whole world. On this occasion she rounded the Block Island buoy at 3h. 19m. 10s., and, running with only working topsails, balloon jibtopsail, and maintopmast staysail for light kites, she turned the Sow and Pigs Lightship at 6h. 30m. She could then just lay her course for the finish, and arrived at 8h. 0m. 30s., having made the 64 miles in 7h. 48m. 30s., beating the record." This works out at 8.2 knots as the average for the entire course, which, considering the large proportion of windward work, is remarkably fast traveling.

On the 25th another attempt was made to sail the race for the Lorillard cup, and although the Sappho finished first by over six minutes, the time limit was again exceeded, and the attempt resulted in "no race." On August 28th, in the race for a $1,000 cup, presented annually by the citizens of Newport, the Palmer led most of the way. Unfortunately for her, a guest fell overboard. Picking him up spoiled her chance of winning, and the Sappho captured the trophy, leading the Columbia by three minutes and more.

The postponed race for the Lorillard cup was finally sailed, off Newport, on the 9th of October, over the same 64-mile course. The Dreadnought carried away her flying jibboom (they had such spars in those days), and returned to harbor before the start. The Enchantress struck bottom on the run from Block Island to Vineyard Sound Lightship, and the Sappho beat the Palmer decisively, making the entire course in 7 hours 24 min. 58 sec., 23 min. 32 sec. faster than her record, and an average of 8.63 knots for the 64 miles. The wind was blowing a moderate gale from the southwest. It is interesting to note that on the next day, in a race for the Douglass cup, the Dauntless came within nine minutes of this fast time. Of course, Mr. Douglass did not enter his yacht in this race. This was the last club race of the year, the stage being cleared for the International series.

Undaunted by the defeat of Cambria in the previous year, Mr. Ashbury challenged again for the America's cup, this time with the schooner Livonia. A series of five races was arranged, and four yachts were named to defend the cup, the defender for the day being selected by the committee on the morning of each race. The schooner Columbia won the first two, and was defeated in the third, being crippled by the failure of some of her gear. The Sappho was called on to represent America in the fourth race, October 21st. This was over a course 20 miles to windward, and return, starting from Sandy Hook Lightship. There was a fresh breeze from the S.S.E., and the Sappho won with ease, rounding the outer mark 27 minutes ahead, and winning by over half an hour. On the 23d the final match of the series was sailed over the old "inside course" of the New York Yacht Club, starting from the Narrows, turning Southwest Spit and Sandy Hook Lightship, and finishing off Fort Wadsworth. There was a good southwest breeze, and the Livonia crossed the starting line in the lead, but the American yacht soon overhauled her and rounded the Lightship 12 minutes in advance, kept gaining all the way to the finish, and won by about 26 minutes.

After the International series was thus concluded, a match

(Continued on page 452)

The Enemy—My First Offense

By CHARLES STUART MOODY

"Be not the first by whom the new is tried,
Nor yet the last to lay the old aside."

THAT spasm of wisdom was thrown by a fellow named Pope, Alexander Pope, several years prior to my appearance on earth. Some dozen years subsequent to that important event I digged it out of McGuffey's old Fourth Reader; it sounded like pretty good philosophy and I made it a part of my credo.

That's how it happened that when certain sportsmen friends of mine became inoculated and were passing through the most virulent stages of motor-boatitis, I escaped infection. It was something closely resembling manual labor to yank a heavy row boat around by the fins, but I had the blessed assurance that if I kept at the oars long enough I would get there and back, which was more than some of my motor boat owning friends did. At the same time I was bound to confess there was a fascination about seeing them chug away over the bright green water, what though I knew within the hour they would be wildly signalling a passing steamer to come and tow them into camp.

In an evil hour Satan tempted me and I fell. Satan was represented by a good shooting chum of mine who owned a dinky little two-horse engine which he had outgrown and hated to have lying around. One day he said to me:

"Doctor, if you can make any use of that engine I will give it to you. It's just the thing for a sneak boat."

I am willing to take a solemn oath that up to that time I had no thought of owning a motor boat. I am human, and, like humans, cannot resist the temptation to get something for nothing. I accepted the gift.

Now a gasolene engine is not a bit of good unless you have a boat to go with it. I didn't have the boat. I must have one made.

I visited another friend (at least I thought him one at the time; since I have entertained some doubts) who builds boats according to the plans, specifications, and other things in such cases made and provided. That he has turned out some fearful and wonderful creations goes without saying. If you should order a cross between Charon's Stygian ferry and a Siwash dugout he would cheerfully build it. It's none of his funeral.

My first friend's suggestion in regard to the sneak boat stuck in my brain. I couldn't get rid of it.

"George, can you build a sneak boat?" I asked.

"Build anything that floats," was his reply.

"Put an engine in it?"

"Put legs on it if you want 'em."

"What is a sneak boat anyway?"

"Oh, it's a thing you hunt ducks in."

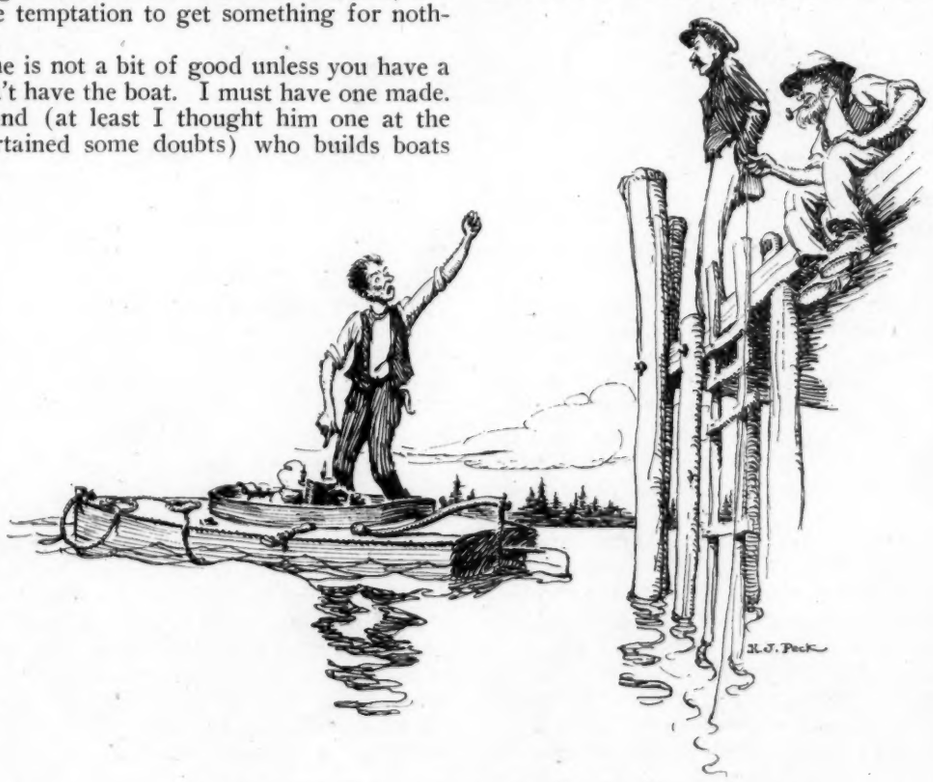
That struck me about right. I'm some duck hunter, and anything that would help the game along appealed to my sense of the fitness of things.

"How much will she cost?"

He told me. It didn't seem such a large sum, seeing the engine had cost me nothing. Some wise old Roman once said "beware of the Greeks bearing gifts." I should have remembered that when my friend presented me with the engine.

George set to work building my sneak boat. It was then balmy August, and about the ides of September I promised myself a duck hunt. A few young mallards were already mocking us just abaft the city dock in the full assurance that the Argus eyes of the game warden were upon the man who dared molest their reign. It's a singular fact that game birds, especially mallard ducks, know the open season to a day. Five minutes before twelve o'clock midnight, September 14th, those ducks would pick up and by daylight be hiding in some rush covered swamp sixteen miles from town. How in thunder do they know the season opens on September fifteenth?

The work progressed rather deliberately. After a week of anxious watching on my part my future craft resembled nothing quite so much as a winter-killed, coyote-picked steer. George assured me that she was coming along fine and would be complete in time for me to greet the open shooting season. He might have added: in time for my wife to collect my life insurance and buy a new set of furs before winter set in, but he charitably refrained from making that comment.



"GO AND GIT THE BLITHERING IDIOT THAT GAVE YOU THIS THING"

It was not until the thing was enclosed and had assumed the appearance (somewhat) of a boat that I learned about the Greeks and their gifts. I went down to the shop one morning and George handed me a list about as long as a laundry check.

"Git them," he commanded.

Being an obedient sort of chap I forthwith departed upon my errand. I accumulated a cart load of dilapidated tinware, yards of cordage, canvas by the bale, several dinguses that looked like infernal machines, and other things "too

numerous to mention." I drew a check for the junk at the end of the month and my wife wondered out loud why she couldn't have a new fall bonnet. I knew, but—well, being married yourself, you know how it is—I didn't tell her.

By some sort of mechanical legerdemain George managed to stow all the stuff around the boat in some capacity. I forgot to mention that the ides of September had come and gone. The ducks were not here but had they been they were safe from my felonious intentions.

About the time when chill November winds swept down the lake George proudly announced that she was done. He had installed (I believe that's the proper word) the engine, daubed some green wagon paint over the outside and she was ready for the wave.

Lest some of my unknown friends are tempted to build a boat like her I will append a brief description as a sort of WARNING sign. She was 12 feet in a longitudinal direction and four feet across the equator, built upon the graceful and sinuous lines of a ferry boat. The cockpit, which held the engine, a box of axle grease and a tin oil can, was six feet this way and three feet that. My personal architecture is six-four this way and 18 scant inches the other. It became a problem how to bestow my Gothic elevation in such manner in that cockpit that the engine would have room to operate. I finally figured it out, but there wasn't room for the dogs, and I had to drag the decoys along behind. The boat was sawed off square across the posterior, and when I managed to get myself planted, the screw stuck half way out of the water. When we got going the thing had a striking likeness to a coot hurrying home to dinner.

"I HAD TO DRAG THE DECOYS ALONG BEHIND"

Did you notice the word "when" in the foregoing sentence? That word was placed there after due and timely consideration. The gentle reader will infer that we did not get going suddenly. His inference does credit to his deductive reasoning. We did not. I repeat, we did not.

George launched the craft with a handspike while I stood by with a bucket of gasolene. I have since learned that gasolene properly applied will generate enough enthusiasm to make a boat go. There seemed to be something amiss with the way we handled our supply. It did not enthuse. I know less about gas engines than I do about the tariff, and my artisan was in about the same condition, judging from the way he didn't make that engine perform.

When everything was ready George took hold and cranked the flywheel gently, about like he would rock the baby to sleep. The engine emitted a hollow, tubercular cough that made me want to examine its lungs with a stethoscope, then it relapsed into silence. He jerked the crank handle a little more decidedly; she coughed again, this time a high, bronchial wheeze. Another spasm of silence. Then George grabbed the crank lever and jerked the engine out by the roots; she barked a fierce joyous bark, the wheel reversed, the crank handle kicked back and George used language. Why prolong the agony? He worked half a day without success.

"Go and git th' blitherin' idiot that gave you this thing," he demanded as he kicked the offending engine savagely and crawled out of the boat.

I did. I hunted up my friend the donator, and said to him: "Look here. You got me into this mess and it's up to you to get me out. By all the ties, fraternal and otherwise, you are bound to come to my relief."

He walked down with me. When he saw my rig he remarked, "I'll make the engine run if you'll firmly tie that thing to the pier so that it can't get away, but I'm dinged if I trust my precious skin in it loose."

We accordingly anchored the boat to a pier with a heavy hawser so that there was no possibility of her ever getting loose. My friend stepped in, jiggered around a few minutes, turned the fly wheel over and that obstinate engine went spluttering away, kicking water over ten acres.

I was at last the proud possessor of a motor boat. I bought a white duck yachting suit and affected a nautical roll in my walk that must have been very fetching. If you can conjure up a mental picture of a hop pole dressed in the remnant of a last year's white sheet, and afflicted with a comfortable jag you may be able to form some idea of my appearance doing my "nautical roll."

I tied my new acquisition to the dock one night and some artistically inclined friend of mine painted the name ENEMY across the bow in particularly atrocious red barn paint. The Enemy became one of the famous sights of our beautiful city. She ranked with the big mills, the "longest wagon bridge in the world," and the fish hatchery, as a means of attracting tourists. They stood before her in rapt amazement.

She rode rather low in the water. With five gallons of gasolene, an extra monkey wrench and me, she just about cleared the water on a calm day. When a gentle zephyr strolled down the lake it kept me busy with a lard pail bailing out the water I had no use for. Her speed was the wonder of all beholders. When things were running smoothly and I had the wind at my back she would make almost three miles per hour. If racket had been a speed indicator she had greased lightning looking like an ox wagon stuck in the mud.

She was designed to sneak up quietly and bite the elusive mallard before he knew anything about it. In this she was not a glittering success. The mallard would hear us coming from the time we left the dock and when we arrived he would be somewhere over in northern Canada lunching with his wife's people.

Whenever a bunch of wild geese went by overhead you could hear the wise old leader telling those in the rear how that particular lake was the feeding ground of a strange and terrible beast with a voice like many gunshots, and that they must never under any circumstances drop in there for a night's feed—they never did! At any rate, the Enemy saved a lot of birds' lives, but somehow that fact did not seem to augment her popularity.

The other shooters held an indignation meeting one night and got out a permanent injuction prohibiting me from navigating the Enemy, on the ground that I was interfering with the peace and harmony. I attempted to argue the matter with the judge, who is one of the shooters, but he fined me for contempt of court. This *isn't* a free country.

A great storm came down the lake one night and the Enemy blew away. About a week after that I found the engine in the shop with my name attached; the hull I have never found. I suspicion about a dozen friends of mine, but that doesn't do any good. I can't prove anything.

A GLIMPSE OF BISCAYNE BAY. HOUSEBOATS AND POWER BOATS ARE ANCHORED HERE THROUGHOUT THE WINTER

Fishing Among the Florida Keys

The Tarpon Fishing Season Now in Full Swing—Many Power Yachts and Cruisers from the North in Florida Waters this Year for the Fishing—Ideal Sport for Those Who Cruise Southward

By HARRY BELKNAP

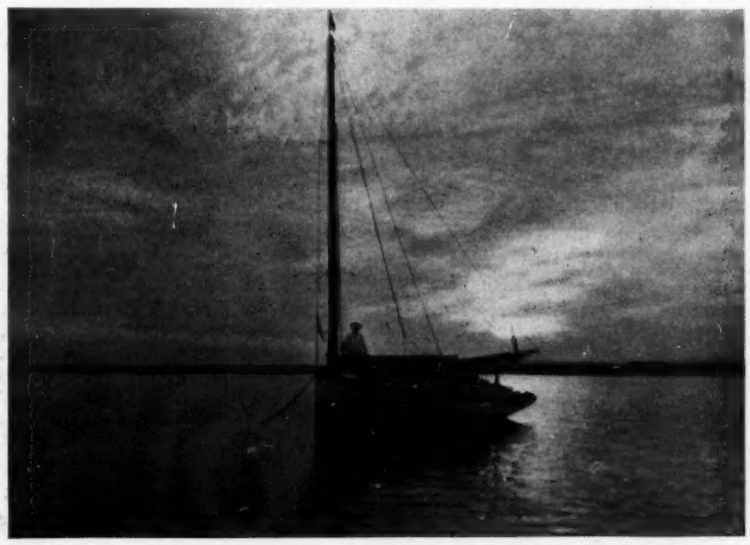
ALTHOUGH the big tourist hotels in Florida are now closed, the real fishing season is only just beginning. Immense schools of mullet and small fish are striking inshore with the advent of warmer weather, and hordes of hungry tarpon and other game fish are chasing them. This means splendid sport for those power boatmen and yachtsmen who have taken their boats South for the Winter and linger for the fishing as the days lengthen.

Some tarpon have been caught as early as the latter part of January or the first of February, but the really big fish do not begin to take the bait until April, and May and June are even better months for angling for the Silver King. There are a number of totally wrong impressions prevalent about the fishing season in Florida waters. One is that the weather becomes unbearably hot after the first of April. It is undeniably warm and uncomfortable in the cities and towns on the mainland, but out on the fishing grounds among the keys that fringe the coast on both sides of the peninsula south of Miami there are always cooling breezes, and it is an undisputed fact that the average Summer temperature at Key West is several degrees lower than in New York City.

On board of a comfortable cruiser, with a well ventilated cabin and ample deck awnings, no one need be afraid of suffering from the heat. The mosquitoes are not nearly as bad as some reports make out. True, if you anchor very close to a mangrove-covered key on a perfectly still night you will have some mosquitoes, but by choosing an anchorage farther off shore, and, at times, by burning a little insect powder or piece of waste to make a smudge, no trouble will be had with the insects. Mosquito nets are a luxury seldom needed, and on the fishing cruise I made among the keys in March on the auxiliary catboat Chequit it was only on rare occasions that I found it necessary even to smoke out the cabin.

Another impression that many people, not familiar with the region have, is that it is necessary to have some local pilot or guide to show them the channels and fishing places among the keys. This is not necessary. The shoals and mud banks are all plainly marked on the regular government charts and the water is so clear that in fair weather it is an easy matter to pick out the channels simply by noting the color of the water, as the shoal spots always show up brown and the channels can be easily distinguished.

Boats drawing eight feet of water can cruise along the Hawk Channel from Miami to Key West, a distance of nearly one hundred and eighty miles. This is practically an inside passage, for while it is outside the line of keys it is inside of the reefs and hence well protected from heavy seas. There is another passage inside the keys which is widely used and very popular with owners of boats drawing not over three and a half feet. The course leads southward in Biscayne Bay for some twenty-five miles; thence through Card and Barnes sounds to Jewish Creek, where there is a drawbridge of the Florida East Coast Railway. After passing through several small bays and two more creeks the broad expanse of Great Florida Bay is

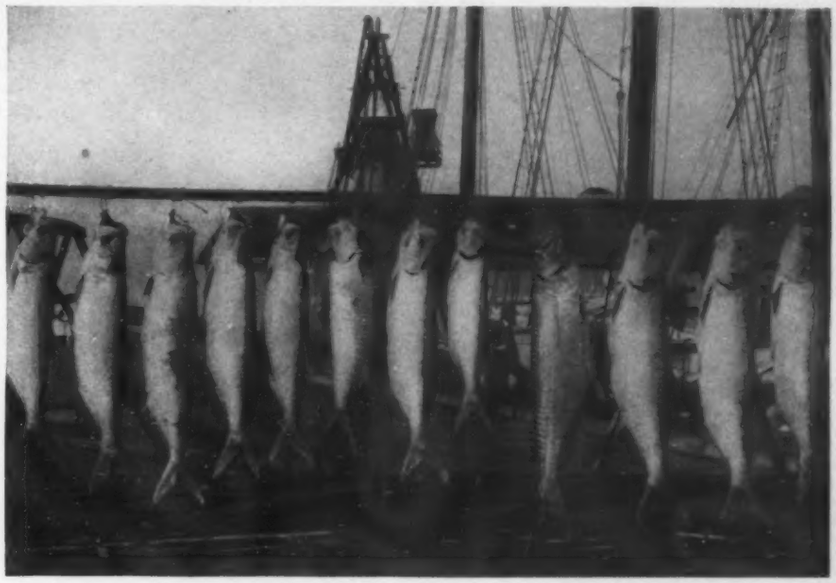


CHEQUIT WAS AN ABLE CRUISING CATBOAT WITH AN AUXILIARY ENGINE

AMONG THE KEYS THAT STRETCH FROM MIAMI SOUTHWARD

reached. There are several dredged cuts through mud banks, but these are all plainly marked with stakes.

Lignum Vitæ and Indian Key Channels are famous tarpon fishing grounds. There is a railroad drawbridge at Indian Key, but the tide flows through it so swiftly that it is very unsafe and practically impossible to pass through except at slack water. Jewfish Bush, Knights Key and Bahia Honda are the next localities to the southward where good fishing is sure to be found. The biggest tarpon are to be found near some of the trestles and railroad viaducts. At Long Key there is an up-to-date fishing camp with a boat anchorage which is very popular and has accommodations for over a hundred fishermen.



A CATCH OF TARPON ON THE WHARF AT KEY WEST

After leaving Bahia Honda most boats take the Big Spanish Key Channel to the Gulf of Mexico and then continue along the western side of the keys to the island city of Key West, which is the county seat of Monroe County and the terminus of the "Over Sea Railroad," as the Key West extension of the Florida East Coast Railroad is usually called. Key West is well worth a visit, if only to see the mammoth turtles which are taken off the keys nearby, the fish and sponge wharfs, the auction sales and the big cigar factories. There is a navy yard, a wireless and a coaling station at Key West and several shipyards where first-class repairs to yachts can be made.

Gasolene and supplies can be obtained at Miami, Key West and at Marathon, located midway between these places. If yachts run short of supplies or gas between these points the railroad company will furnish the articles required from the stock which they carry for their own use at the various construction camps along the line. Although trains are now running through to Key West, the railroad will not be entirely completed for several years.

Most of the tarpon fishing is done on moonlight nights but

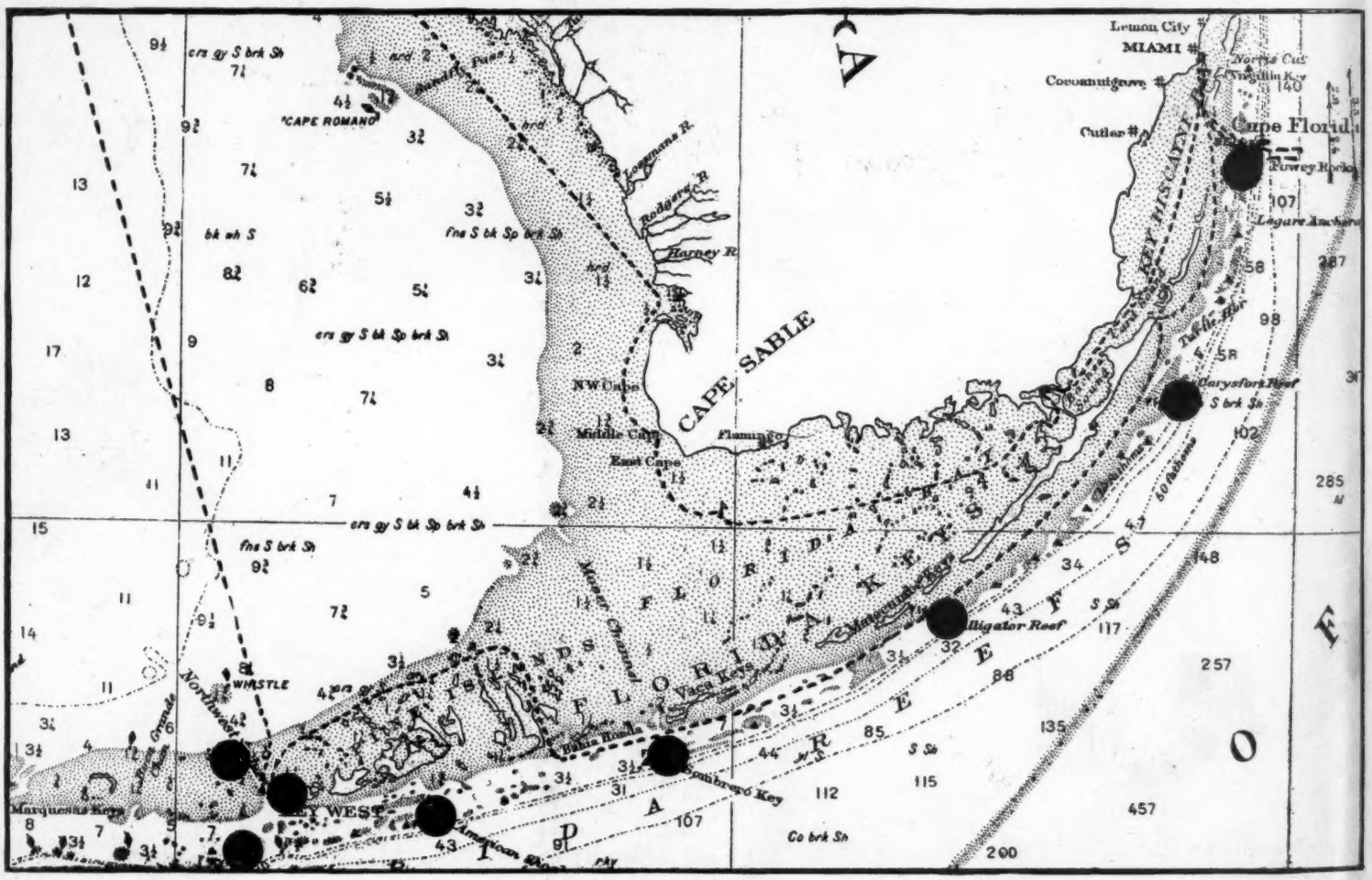
MOUTH OF THE MIAMI RIVER. POWER BOATS AND YACHTS OF EVERY DESCRIPTION RENDEZVOUS HERE ON THE WAY TO OR FROM NORTHERN WATERS

A FISHING CAMP ON LONG KEY

the fish may also be caught by daylight. Trolling from a row-boat with rod and reel, using fresh mullet for bait, is the favorite method. The hook is carefully sewed into the mullet, which has been split open for that purpose, and the wire leader is passed out through its mouth. The boats used are round-bottom skiffs with a chair seat fastened to the middle thwart, facing the stern. A leather belt with a hole in it to hold the butt of the rod is almost a necessity, and a strong gaff hook on a stout pole is required to land the fish.

Tarpon caught off the Florida keys range in size from small fish of 20 or 30 pounds up to six- and seven-footers of 150, 180 or even 200 pounds. A hooked fish will frequently leap out of water eight or ten times and it is often a question as to which is the more exhausted at the end of the struggle, the man or the tarpon.

Besides the Silver King there are many other big game fish to be taken among the keys that furnish exciting sport on a rod and reel, and the three weeks we spent on the Chequit gave us ample opportunity to try for other varieties. Amberjack and barracouta weighing 50 and 60 pounds are frequently caught. Huge sailfish—a rare variety of the finny tribe with an enormous dorsal fin resembling a sail projecting above water—are sometimes landed. One of these fish, weighing 140 pounds, is mounted in the living room of the Long Key Fishing Camp beside other deep-sea trophies. Kingfish, Spanish mackerel, African pompano and crevalle furnish good sport; while for those who prefer bottom fishing, grouper, yellowtail, red snappers, mutton fish, sailor's choice, and grunts are ready to bite a hook baited with a piece of crawfish or "key lobster." With light tackle excellent sport may be had fishing on the mud flats for bonefish, which

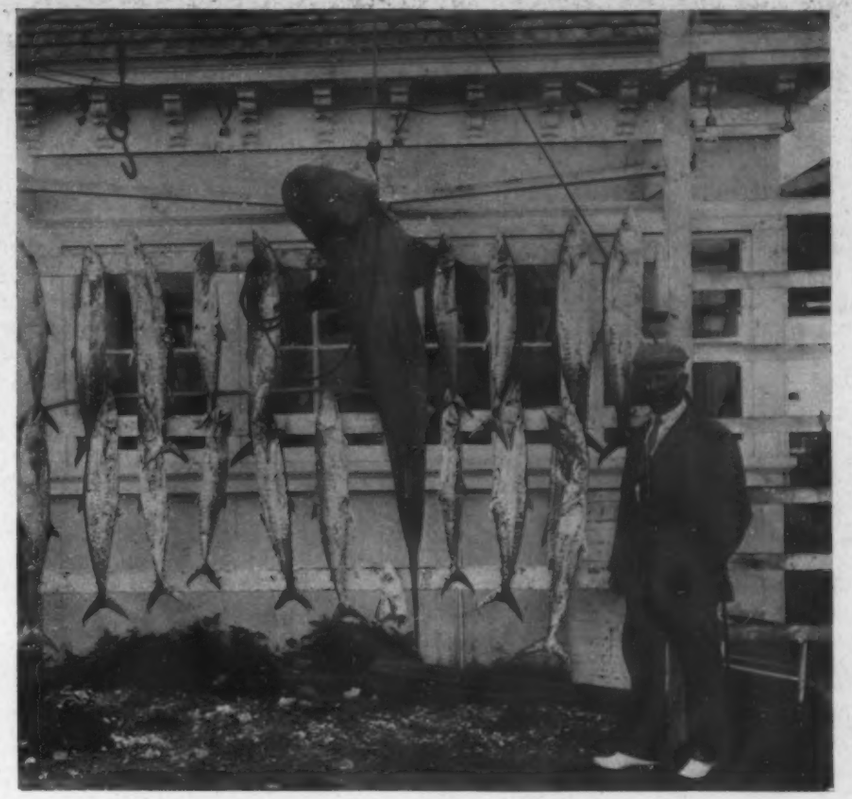


FLORIDA KEYS SHOWING THE INSIDE AND OUTSIDE CHANNELS

come into the shoal water to feed with the young flood tide.

Besides rod and reel fishing, exciting times may be had with harpoon and striking pole. A two-prong spear or "grains" is often used. This is attached to a chain leader and then to a rope coiled in the bow of the rowboat. One must be sure to see that the end of the line is securely fastened, as a big fish will often pull a light skiff around in lively fashion. Sting rays, sharks, whip-tailed rays, and similar large fish can be captured in this manner, and around the mangrove roots will be found snappers and crawfish in great abundance.

We noticed that many yachts put out a shark line every night. This is baited with a catfish, piece of sting ray, hunk of meat or, in fact, almost anything, as sharks are not very particular as to their diet. A large iron hook with about three feet of chain attached to 180 feet or more of stout rope is generally used. A float is attached a short distance above the bait, and the line is then allowed to drift out from the boat with the tide. An alarm clock arrangement in the shape of a tin pail is used on some boats to tell when Mr. Shark takes hold. This is placed inside the cabin and connected to the shark line by a piece of cord so that the least pull will cause a great rattle and clatter as the pail is dragged on deck.



A FINE CATCH OF KINGFISH AND A SHARK

The good fishing and the beautiful weather are the chief attractions of cruising in Florida waters. There is nearly always a breeze blowing, and there are almost no rainy days—a few showers and squalls at times, but very little steady rain except in August. There are plenty of good anchorages, and with the completion of the Jacksonville-St. Augustine Canal an unbroken inside passage was opened up along the entire east coast from Jacksonville to Key West, a distance of nearly 400 miles. In our cruise this year we met more yachts in Florida waters than ever before. Power houseboats, auxiliary yawls, ketches, raised-deck cruisers and schooners are represented in the fleet that casts anchor off the Biscayne Bay Yacht Club-house in Miami.

The days I have spent knocking about the waters of Biscayne Bay and the keys to the south of it, or those at anchor near some desolate key, and the nights I have slept on deck under the wonderful stars, are among the happiest I have ever had. It is the joy of living in the open, the pleasure of exploring strange islands, of picking a way through tortuous channels, and the love of the water that makes the call of the Florida seas so strong.

The Song of the Fisherman

By FREDERICK WILLIAM WALLACE

"The First Hundred Years o' Fishin' Is the Hardest." —Fishermen's Proverb.

A little song I'll sing ye,
An' th' drift to it shall be,
Of th' men who make their livin'
From th' harvest o' th' sea.
Tho' th' life is tough an' heavy,
There's a little fact that cheers,
For th' fishin's only hardest
In th' first hundred years.

There's th' men who set on Georges,
On th' Channel an' Cape Shore,
From th' Quero down to Cashes,
An' th' Peak to Labrador;
There's th' seiners an' th' shackers,
But where'er a vessel steers,
They'll tell you fishin's hardest
In th' first hundred years.

When ye're fishin' on a bottom
Which snarls up all yer trawl,
Jest use some healthy langwidge,
An' shet yer teeth an' haul;
Or, wind her with a gurdy,
Never mind yer parted gears,
Recollect th' hardest fishin'
Is th' first hundred years.

When th' fog rolls round about you,
An' th' vessel's out o' sight,
She'll be joggin' down to loo'ard—
Don't ferget it, but sit tight.
She won't go 'way an' leave you,
So calm your anxious fears,—
An' remember fishin's hardest,
In th' first hundred years.

When a four tub set ye're haulin',
An' th' fish are strikin' good,
Don't mind a run o' halibut
That strips off every snood,
Jest keep a-haulin' steady,
An' don't give way to tears,
But think o' stickin' gangin's,
For th' next hundred years.

When th' tide sets hard agin you,
An' you calc'late you'll drop,
Jest brace yer back up stiffer,
An' never think o' stop;
Tho' your hands are sore an' blistered,
An' your dory-mate, he jeers,
Jest remember as he guys you,
"It's th' first hundred years!"

When you're on th' Banks in winter,
An' you think you're goin' ter freeze
In a logy, iced-up dory,
Midst th' gray backed, crestin' seas.
Jest keep a'haulin' steady—
Never mind th' way she rears,
Winter fishin's always hardest
In th' first hundred years.

When th' pens are toppin' full below,
An' ye've swung her off fer home,
When balloon an' stays'l's on her,
An' her wake is white with foam,
With her scuppers spurtin' water
As for old Cape Ann she steers,
There's some little joy in fishin'
In th' first hundred years.

Getting the Most From Your Sails

By GEORGE W. ROBINSON

PART II

AFTER coming in from a hard, wet sail or race, many amateurs are so tired that they drop the mainsail and row ashore in haste to get a hot dinner, letting the head sails lay, a sodden mass, in the cabin all night and part of the next day before the owner has time to hoist them up to dry. On warm summer nights sailcloth used in that way cannot help becoming steamy and mildewed. On larger boats, where a paid hand is carried, the sails can be hoisted and properly dried as soon as the yacht comes to an anchor. For the same reason, never leave a reef tied in your sail after the sail is lowered for the night. It is apt to be wet, and in drying out will not only mildew but will pull the sail out of shape badly and often spoil a good leech.

The shape of the head sails and the way the sheets are led are just as important as anything else to the success of a boat. And if the jib is not properly used no amount of care on the sailmaker's part will produce a fast sail. A jib should be sheeted so that the foot is pulled a little bit tighter than the leech, and, therefore, great care has to be exercised to get the lead of the sheets just right. When a boom is used on the foot of the jib, the jib sheet blocks can be shifted forward and aft along this spar to get the strain just where it does the most good, but where the blocks hook into the clew with no boom the fair-leaders on deck have to be placed in just the right spot or a loss of power will result. They should be so placed that the after edge of the jib lies flat and is not pulled in so as to retard the free flow of air off its surface after it has given its pushing power to the forward body of the sail.

Racing sails are cut with so much roach or curve to their after edges that, to make this surplus canvas lay flat and not curl or flap, canvas pockets are sewn on the sail and thin ash battens slipped in to act as spreaders and keep the cloth flat. Do not leave the battens in when you take your jib off. Untie the strings that close the pocket ends and pull the battens out. Left in, they might punch a hole in the sail, cause a constant strain and pull the sail out of shape. The same applies to mainsail battens, and they should be taken out before furling the sail, if possible.

Light sails can accomplish wonders for *any* boat if properly set and handled and there is no good reason why the regular use of ballooners and spinnakers should be confined mainly to the racing craft. It is true that these additional sails make a little extra work and sometimes, with an inexperienced crew, act with some "cussedness," but these things are soon forgotten in the pleasure of the better, snappier and *faster* sailing which results.

The most common light sails are balloon jibs and spinnakers. These, or a combination sail used for either, are carried by even the smallest racing craft; so let us look at these for the present and leave such things as balloon jibtopsails, fisherman's staysails, etc., for some other time when the editor is not after us for being behind time with the copy.

Whenever possible two spinnakers should be carried—a small one, and one of larger size. Frequently a small, light spinnaker can be used to advantage in airs so light that the big sail will not stay filled out. Then when the breeze comes in, a quick shift, and the large one is giving you the maximum power. In cases where only one is allowed, select a medium size rather than the largest you can carry. This makes a better all-around sail.

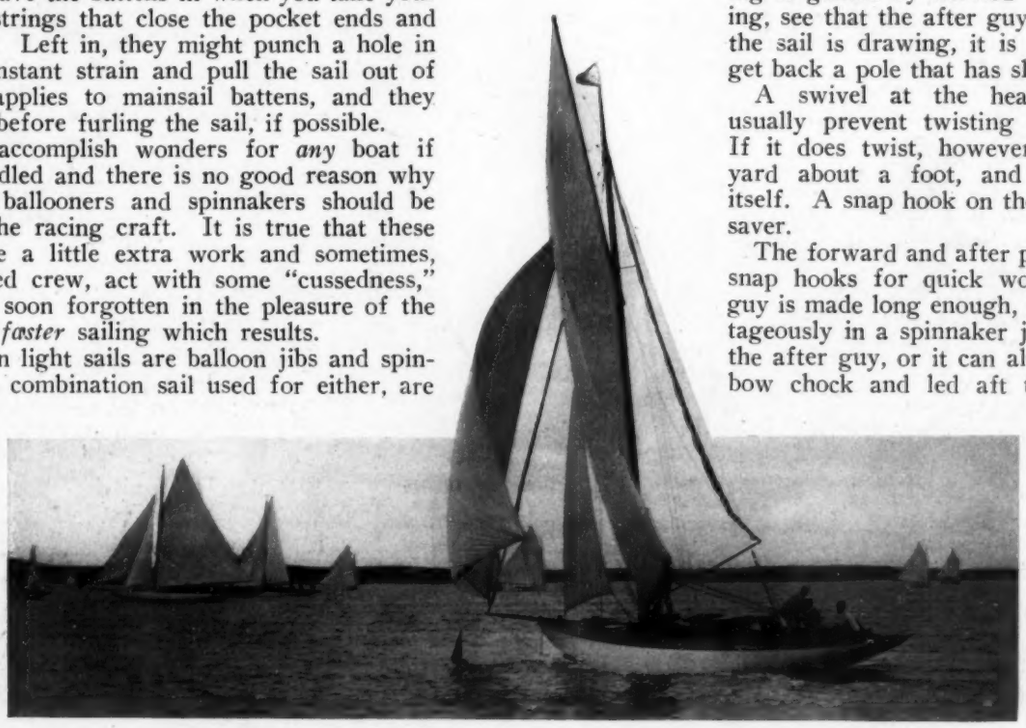
Spinnakers should not be made excessively "baggy," as there is certainly no advantage in holding a big pocket of dead air in the sail. It is considered good mechanics to get rid of spent air as quickly as possible, and a ballooner or spinnaker made flat enough to allow the wind to escape is a better sail than the extreme "bag." This is particularly important in the classes restricted to spinnakers only, as the sail then has to be used as a ballooner also.

In stopping light sails, remember the old saying "more haste, less speed." Take enough time, and do it right. If the sail is rolled tightly, it can be tied with less turns of the thread, hoisted more easily, and is less liable to break out before the proper time, or to catch in anything. On the other hand, when you do want to break it, it pulls out with no trouble or swear words. A good way of stopping is to make the head of the sail fast forward to a cleat, haul tight and make tack fast to stern cleat. Bring the clew (sheet) over to the luff (stay). Spread out the sail as flat as possible, and carry the free side over to the luff. Repeat this last until about two feet remain. Then start to roll, as tightly as possible, and put on the ties of No. 3 or No. 4 machine thread. Near the clew two or three turns of thread will be necessary, but near the head and tack one turn is ample. If the luff is marked to show just where the clew should be carried to, the stopping will be correct every time.

Take plenty of time in setting the sail. Nothing is gained by hurried work. If it is blowing, see that the after guy is made fast. Once the sail is drawing, it is a tremendous job to get back a pole that has slipped forward.

A swivel at the head of the sail will usually prevent twisting while being hoisted. If it does twist, however, slack off the halyard about a foot, and the sail will right itself. A snap hook on the tack is a great time saver.

The forward and after pole guys should have snap hooks for quick work. If the forward guy is made long enough, it can be used advantageously in a spinnaker jibe, when it becomes the after guy, or it can also be rove through a bow chock and led aft to the cockpit when "playing" the spinnaker. The halyard should have a snap hook on each end and lead to both sides of the boat. This arrangement often avoids the crossing of halyards, and is generally of great convenience in many ways.

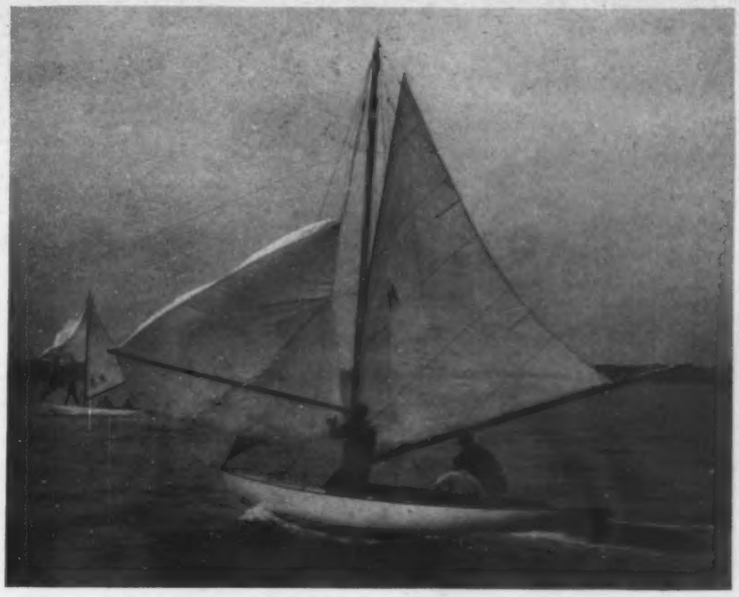


SPINNAKER UP AND STOPS READY TO BREAK OUT, WITH WORKING JIB ALSO SET IN STOPS INSIDE BALLOONER

In regard to the

handling of spinnakers, it is safe to say that the average yachtsman does not take enough care in keeping them trimmed right *all the time*. On this point of sailing, the main and spinnakers sheets should be played for every puff and breath of air that condescends to blow your way. Don't place too much reliance upon the fly at the mast head when running before the wind. It is very erratic, due to draft from the sails, and will often indicate that a jibe is necessary when the real breeze is still in its old quarter.

It is a serious mistake to let your sail get in a bunch or bag forward of your jib stay, as it retards the speed of the boat, throws her head off and makes her bury. The spinnaker sheet should be long enough to come right to the cockpit and reeve through a leader in the deck. This makes it convenient to play your sail from aft where the weight of the crew is more effective, particularly in running off before it. If you have enough crew, let one man handle the spinnaker sheet, another the guy and bunched main sheet parts, while another is on the stick.



TAKE PLENTY OF TIME IN SETTING THE SPINNAKER. THE USE OF A FORWARD GUY WOULD PREVENT SUCH TROUBLES AS THESE

The spinnaker may be effectually carried on the wind in light airs. The jib should be taken in, as it falls against the light sail and knocks out the wind. Do not try to trim the sail full length inside the shrouds, as that would have a very bad effect, both in itself and on the luff of the mainsail. Bunch up the clew, pull the sail into a fairly flat surface, then tie with a sail stop, and play with a light sheet.

Taking in a spinnaker is ordinarily a simple matter. Let go the after guy, allowing the pole to swing forward to the stay, run pole aft, bear away a little, thus blanketing spinnaker, and lower away. If, however, the wind is not dead astern, or you are racing and cannot alter your course, trim in the jib and let it take some of the spinnaker pressure while the pole is being unshipped. The pole will then bring home the spinnaker which was flattened against the jib.

In a good breeze of wind the spinnaker is never effective unless the wind is fairly well aft. One exception to this is when the pole is carried well forward and the spinnaker trimmed by means of the working jib. This scheme moulds the light sail and gives more area. Parts of the sail will flap, of course, but the general result is good.

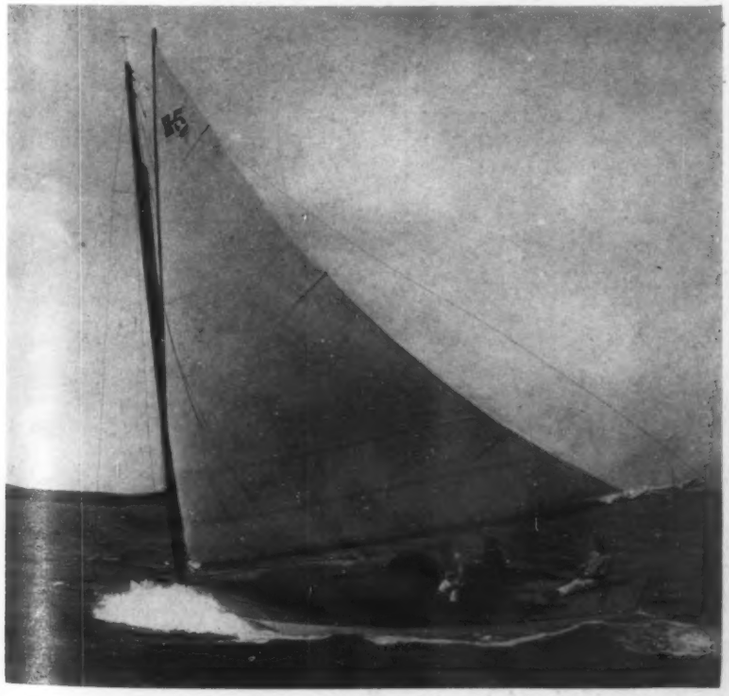
In most one-design classes the balloon jib is barred, as it usually requires an extra hand on board, and amateur sailormen are comparatively scarce. Hence the necessity for a combination ballooner-spinnaker.

In the regular classes, both sails are used, and there is no question of the advantage derived from spilling the spinnaker into a well lifted ballooner. This combination can be worked in a number of ways, all with good results.

A well cut ballooner can often be used in place of the working jib, or backed up with the latter, as described in referring to spinnakers.

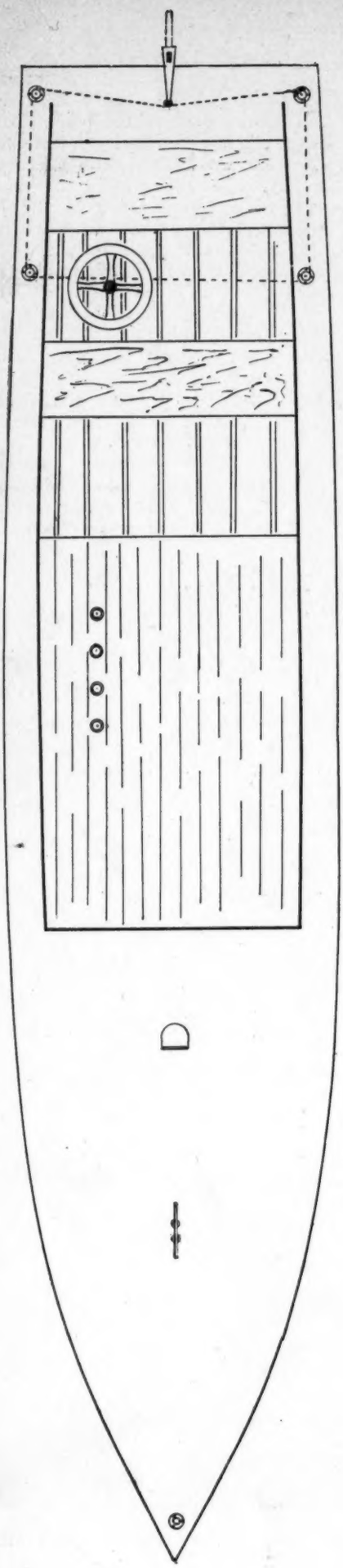
In dousing a ballooner which is snapped to the stay, it is necessary to go out on the bowsprit and gather it in as it comes

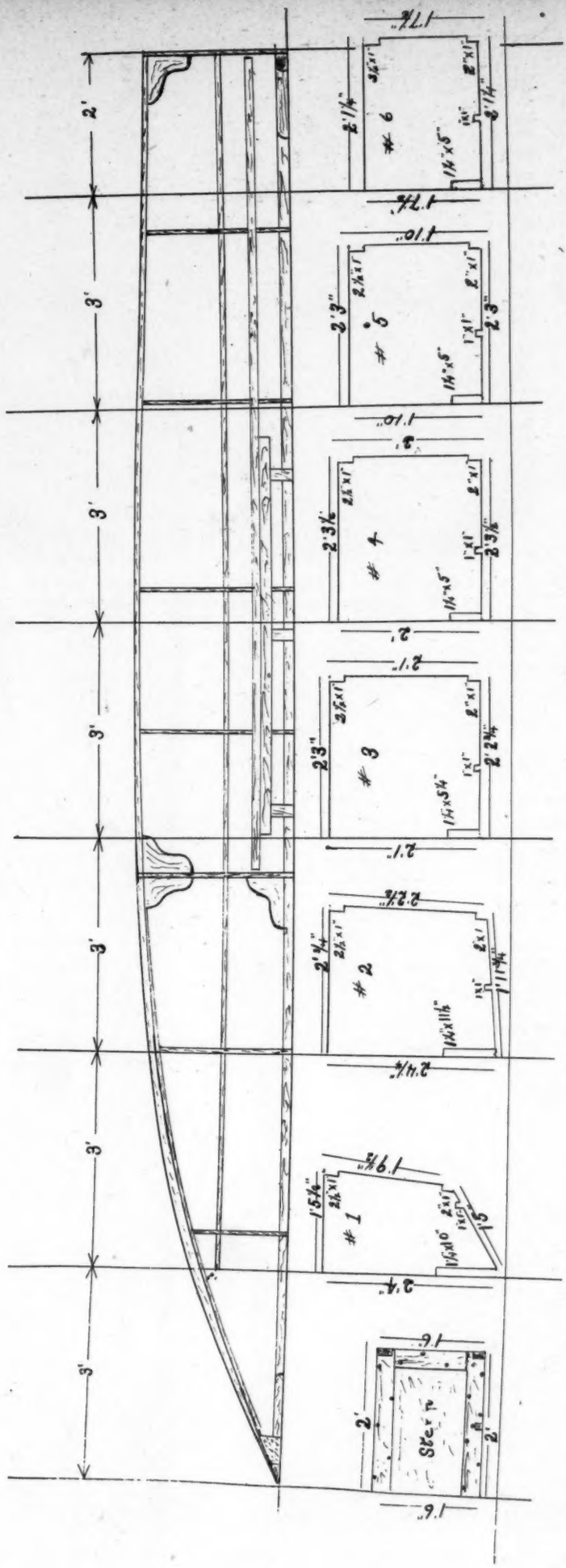
(Continued on page 452)



REEFING IS APT TO PULL THE LEECH OF THE SAIL OUT OF SHAPE UNLESS PROPERLY DONE

GIVE PLENTY OF FLOW TO YOUR SPINNAKER, LETTING THE AIR ESCAPE INTO THE JIB IF POSSIBLE





DECK AND CONSTRUCTION PLANS OF 20-FOOT HYDROPLANE, GIVING ALL MEASUREMENTS, DIMENSIONS OF MOULDS AND DETAILS OF CONSTRUCTION

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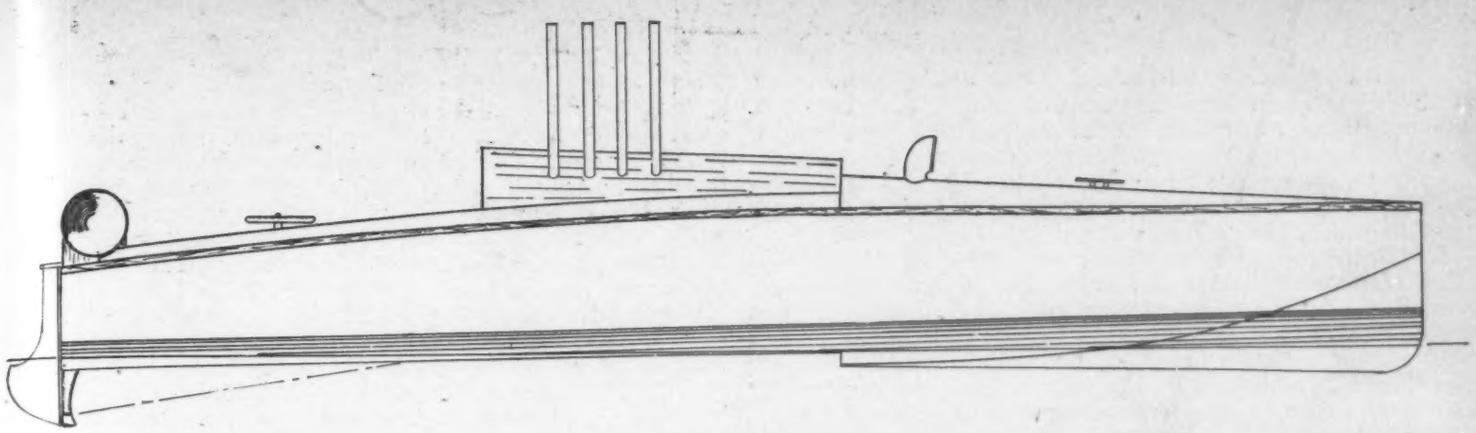


How to Build a 20-Foot, Single Step Hydroplane

By GERALD T. WHITE

THERE have been many hydroplanes described in the various boating magazines, but most of them have been either too complicated for the average amateur boat builder to tackle, or else they have been designed to carry engines that cost from $600 up. This latter objection is one that is felt by the majority of boatmen, as most of them do not wish to spend over $450 or $500 for the entire outfit.

The "plane" described in this article can be built for about $100, as far as the material goes, and can be equipped with any engine that does not weigh over 450 pounds. The boat, of course, can stand any amount of power that can be obtained within the weight limit, and will give good service if equipped with engines of from 10 H. P. up. A fair relation of weight to power is that the engine shall weigh not over 20 pounds to the horsepower in case the motor develops under 20 H. P.; in case it develops *over* 20 H. P., keep its weight under the 450 pounds limit. Of course the lightest weight engine that can be obtained is preferable.

An engine developing about 20 H. P. would probably drive the hull at a speed of between 20 and 23 miles per hour, depending upon the installation and general adaptability of the machine. A 25-H. P. machine would increase this speed about two miles, and a 30-H. P. motor would drive the boat at about 27 miles per hour. A 60-H. P. machine would push the plane at a speed of over 30 miles.

This hull fitted with a motor of from 15 to 20 H. P. would make an almost ideal fast runabout that could be used for racing in the restricted classes, and would be as seaworthy as any boat (of the speed type) of its inches. The design as shown provides room for four people; but to get the best speed out of the outfit do not carry over two, and seat them as far aft as is possible.

In preparing this article I have presumed that the prospective builder knows something about boat building or at any rate the handling of tools, as the space is too limited to tell you how to use a hammer, drive a nail, etc. The construction will be taken up step by step, and anyone that has had any experience at all should be able to turn out a boat that will show her heels to the majority of the fast ones.

After you have decided where you are going to build the boat (it should be somewhere under cover with a fairly even floor), go to work on the keel. This should be gotten out to the dimensions given on the drawings from a piece of sound, dry oak that will finish up 2½ inches thick and 12 inches wide. This stick will be set up on edge, contrary to the usual practice, and a wedge shaped piece running from the step to the stern cut out of it. This gives a continuous keel the full length of the boat, a virtue that is not possessed by every plane. The stem and stem knee are the next parts to get out, and should be from 2½-inch oak. They can either be gotten out of two pieces as shown in the construction drawings, or, what is better, from one piece of natural growth oak or hackmatack. Be very careful when you cut the rabbet in the stem and knee that it is an even depth of ½ inch from the top of the stem to the cut where the chine log fits into the stem, below this it should be just ⅝ inch deep as the planking will be ½ inch above the chine and ⅝ inch below.

If you want to have your boat of the lightest possible construction, even sacrificing strength in order to obtain it, you can make the topside planking out of ⅜-inch stuff and the bottom planking out of ½-inch planks, but it is not advisable, unless you are an experienced boat builder and understand seam-batten construction. After the stem and knee are cut out you can fasten them together and to the keel, being sure they stand perfectly plumb.

In order to be sure that the stem is at right angles to the bottom of the boat it is better to set up the keel before attempting to fasten on the stem. To do this, get a plank of spruce or other cheap wood a full 20 feet long and at least 10 or 12 inches wide and 1¼ inches thick, and fasten it up on edge on the floor so that it is at right angles with the floor, or straight up and down when you drop a plumb line along the edge. Also be sure that it is perfectly straight from end to end. The upper edge of this plank must be cut out so that the bottom of the keel will fit down tight upon it. The best way to do this is to lay the keel on it before you fasten it to the floor, and mark out the bottom edge of the keel, afterwards sawing it to shape. This is the keel mold, and must be exact, else the boat will be out of shape before it is finished, which will seriously interfere with the speed. Fasten the keel upon the mold, either having one face of the keel and plank flush and nailing cleats across both, or, better yet, setting the center of the keel on the center of the mold, and nailing triangular shaped blocks under the keel and to the sides of the mold. Fasten the keel to the mold in at least half a dozen places so that it cannot warp out of shape. You can easily see if the stem is plumb now by dropping a plumb bob. If the knee and stem are in two pieces, fasten them together with long copper or galvanized rivets running through both; if one piece, fasten to the keel in the same manner.

After the stem is in place you had better get out the stern knee, making it out of a natural grown knee if possible, and fasten it to the keel as shown.

The keel is now set up, and you can proceed to get out the molds. These are to be thrown away after the boat is planked, so it is not necessary to make them out of anything but the roughest wood; ¾-inch spruce dressed on one side is excellent for this purpose. Don't think, however, that as long as the molds are going to be thrown away it is not necessary to make them strong and accurate. Be absolutely sure that all the measurements are exactly the same as given on the drawings, and fasten the different pieces that go to make up the molds together with long screws passing through wide cleats over every joint.

Get out the stern board, and fasten 1-inch cleats around the edges to take the ends of the planks. These cleats should be about 2 inches wide and should be well screwed to the stern. Now set

the stern up against the knee and fasten it with long screws, putting the screws through the stem and countersinking the heads. You must take great care to see that the stern is fastened so that its center line is exactly on the center line of the keel. Stretch a line from the inside edge of the stem near the top, to the very center of the stern board at the top, drop the plumb bob from the line you have stretched and see if it drops directly in the center of the keel. Try this every few feet along the line, and if the keel is out of line at all wedge it over straight. Run shores from the top of the stem and stern down to the floor and fasten them when you are sure that everything is exactly plumb; also be sure that the stern board is at right angles to the line you stretched, and, when it is so, run a shore from one upper corner of the stern to the keel a few feet forward of the stern.

If all this work has been properly done you are now ready to set the molds up on the keel and fasten them. Measure the distance from the stem to the forward side of each mold and square it across the top of the keel. Place the midship mold even with the mark and "toe" a couple of nails down through the side of it into the keel; see that the center line of the mold is even with the stretched cord, and that the lower end of the center line is even with the center of the keel. Now shore the mold up from the floor and also from one of the upper outside corners to the keel, of course plumbing it and being sure it is at right angles to the keel. Proceed in the same manner with the rest of the molds, fitting them very carefully and shoring them strongly so that they will not spring out of place when the planks are bent around them.

If you now have all the molds up and shored, you are ready to run the chine log from the No. 3 mold to the stem. The chine will eventually only run to the step, but as the step plank will not be put on until the boat has the side planks on her we will have to run the chine back to the mold in order to fasten it. Taper off the forward end of the chine for a distance of about 3 feet until it is only about one half as thick at the stem as it is is at the No. 1 mold. This will make it easier to bend around the boat. Fasten the chine to the stem with a large screw, and fasten it to the molds from the *inside;* otherwise you will not be able to get the molds out when the planks are on. Fasten the after end of the chine to the mold with a couple of nails so that it is firm. Now bend around the other chine and fasten in the same way. Fit a block about six inches long between the forward ends of these chines, so that the forward end of the block will be against the back of the stem, and fasten the chines to the block with long rivets running through the three pieces (the block and the two chines).

The after chine can now be put on and fastened with screws to the cleats on the stern, and then run up to the No. 2 mold and temporarily fastened there. "Toe" a fastening through the side of the molds into the chine.

The upper stringer or clamp may now be run from the stem to the stern in the notches cut in the upper corners of the molds. Fasten this to the stem and stern in the same manner that you fastened the lower stringer or chine, fitting the block, which is called a breast hook, between the two forward ends of the stringer and fastening with through bolts.

If every thing is fast now you can knock out the shores that hold the keel to the keel mold, and also the shores to the floor; and turn the boat bottom side up so as to get at the bottom to put on the cross planks.

The first thing to do is to get the plank that is to form the face of the step out of a piece of 1 inch oak, 8 inches wide and 4 feet 6 inches long. Exactly in the center of this piece of oak cut a jog the thickness of the keel (2½ inches) and 5½ inches deep, and set the oak piece down over the keel square up against the jog that you cut for the step. Before the piece will go in you will have to cut off the four ends of the chine pieces that you lapped over onto the molds. When you cut these off it is of the utmost importance to be sure and cut them so that they will just reach to the sides of this oak cross piece, as they are to be fastened to the step piece with knees as shown in the detail of the step. The outside knees on the forward side of the step are run from the chine pieces to the step, and the outside ones on the after side of the step brace the after chines, but the inside knees on the forward side of the step are fastened to the keel and to the step-piece. Make all these fastenings very strong with through rivets, as the step is the first part in most planes to show weakness from the tremendous pounding to which these boats are more or less subject. If possible, get these knees out of natural growth crooks 1 inch thick, but a sawed knee with straight grain running from corner to corner will suffice if it is impossible to obtain the others. If you use straight grain stuff make them out of 1¼-inch oak.

The boat is now ready to plank; but before you start to do so go over the drawings very carefully and check up each part to see if you have all the pieces assembled properly; and read over this article again, for if you have not arranged the different parts as shown you will not be able to plank from the following directions.

The bottom, which will be planked crosswise or athwartships, will be of ⅝-inch stuff. The material I will leave to your choice, but to guide you will mention a few of the adaptable woods and their qualifications. If you wish to keep the cost down as low as possible, cypress will make good planking, although it will be somewhat heavier than cedar, which costs a little more but which does not absorb as much water as cypress. These two are about the only cheaper woods that you can use. If you wish the boat to be a treat to the eye in looks as well as speed you can not do any better than to plank with straight grain mahogany, or, better yet, Spanish cedar, though the latter is extremely scarce. Spanish cedar is lighter than mahogany and looks much like mahogany. Teak is an exceptionally fine wood for planking, although it is a little heavier than the others, but its great strength and lasting qualities make it almost ideal for bottom planking, especially forward of the step, where strength plays such an important part in hydroplane construction.

You will find upon turning the boat over that there is another set of notches in the molds that must be attended to before you can plank. Put the stringers intended for these in place in the same manner that you fitted the others, only it is not necessary to fasten them with a knee at the stern or with a breast hook at the bow. When these are in, take a short straight-edge, one about 3 feet long, and lay it across the boat just forward of the step. See if all the stringers are fair across, if not, take the plane and fair them off so that the straight-edge will touch for their entire width. If they all seem fair but one, do not plane them all off, but either raise or plane off the one that is out. You must do this the whole length of the boat, so that when the planks are on they will all touch the stringers, without any part being pulled out of place. This fairing up process is one of the most important parts in the planking of a boat, and, unless it is well done, the boat will never make the speed that she should, nor will she steer straight.

The points on all the molds that project below the top of the keel (figuring that the boat is right side up) can now be sawed off so that you can put on the keel-batten that serves to receive the lower ends of the planks. This piece of wood must be screwed fast to the keel with long screws spaced about every 5 inches. After this is on you must fair it off so that it is even with the stringers for its entire length.

You are now ready to start the actual shaping and putting on of the planks. This operation is usually attended by wailing and gnashing of teeth by the amateur builder when the boats are of regular rounded form, but this boat we are building has no curves athwartships, and consequently is almost as simple to plank as a box.

Aft of the step the planks will run all the way across the bottom in one piece, but forward of the step where the V section starts the planks will have to be put on in two pieces. For this reason it will be better for you to start to plank from the step aft, and use what short pieces you have left for the forward end.

The only thing you have to look out for is that the planks are

all cut out before you put them on, and that the sides are parallel; otherwise the planks will be crooked before you are done. The planks should be bevelled a little on the outside edges, so that when they are fastened in place the seams will be tight on the inside but open not more than 3-32 inch on the outside, so you can drive the caulking cotton into the V-shaped opening. It is of the utmost importance that the seams be perfectly tight on the inside, so don't fasten a plank until it is perfect, unless you like to work a bilge pump.

The planks forward of the step will require a little more fitting on their ends than the after ones, as they must fit up against the keel and down on the keel batten with a good snug fit, otherwise you will have a leak between the keel and the garboard that will be almost impossible to stop. The seam where the planks butt against the keel should be a little open on the outside, the same as the seam between the planks.

You can either fasten the planks to the stringers and keel-batten with screws, or you can rivet boat nails over burrs on the inside. The latter method is the one that is to be preferred, but it means a little more work than the screw fastening. If you decide to use screws, use 1½-inch No. 8 brass, flat-head, and countersink for the heads so that they will be just a little below the surface, not more than 1-16 inch, otherwise the plank will be weakened. In putting in the screws or nails do not have them over 3 inches apart, and do not place them any nearer the edge of the plank than ½ inch.

If you have all the bottom planks on, plane the ends off flush with the sides of the chine logs, as the side planks are going to come down over the end of the bottom planks.

You can now turn the boat over right side up and mount it on the old keel mold, and shore it up in a strong manner, so that the strain of bending the side planks around will not alter the shape of the boat. The first side plank to go on will be the upper one. This plank should be held with the bottom 9 inches below the sheer line at the stem, and 6 inches below the sheer line at the stern. The sheer can now be markd on it with a pencil held on top of the sheer stringer. The curve can then be sawed out at the top of the plank, and the bottom edge made a perfectly straight line, with just a shaving off the outside of the edge, so as to make a V-shaped opening with the second plank for the caulking. Screw or rivet the upper edge to the sheer stringer, and screw the forward and after ends to the stem and stern, also fasten the plank to the molds with two screws in each, but do not put the screws in all the way, as they will have to be removed when the molds come out and the timbers are put in.

The second plank is very easy to get out as it is just a straight board 6 inches wide for its full length. Fasten this in place, being sure that the seam is tight between it and the top strake, with a little opening on the outside. The third plank will have a dead straight edge on the top, but the lower edge will have to be marked so as to follow the chine forward of the step, and drop below the chine aft so as to form the pocket in the after underbody that is responsible for much of the speed of this model. Make the measurements very carefully from the drawings, and then fasten the plank in place. Remember that the lower edge of this plank is to come down over the ends of the bottom planks in the V-shaped sections forward of the step, so you need not cut this part of the plank off until it is fastened, and then plane it down carefully so that it is flush on the bottom. This plank should be fastened every 3 inches to the chine with whatever fastenings you decided to use.

The boat is now practically done on the outside as far as carpenter work is concerned, and you can go to work on the inside, putting in the timbers and engine bed. The timbers are to be ¾ inch thick and 1 inch wide, and are to be set with the ¾ inch side against the planking. The timbers will fit up tight underneath the sheer stringer, and down tight on top of the chine, and should be fastened to the planking with the same fastenings that you used elsewhere. The timbers are to be spaced 10 inches apart everywhere but in the engine compartment, here they are to be spaced 8 inches. Leave the molds in until you have all the other timbers in, then nail several stay laths across the hull near the molds to keep the boat from spreading out of shape, and take the molds out, putting timbers in their place.

The floor timbers are the next to go in, and are shaped as shown in the section drawings. There should be a floor timber across the bottom of every third timber, except at the engine bed, where there will be one across every second timber. These floor timbers should be cut as high as possible on the sides where they fit against the timbers, and should be rivetted fast through the side of the timber, and screwed through the bottom planks. In case any of the floor timbers come right over a seam in the bottom planks you cannot fasten. Don't have any row of fastenings come too near the edge of the seam or it will split off.

The engine bed timbers should run as far forward and aft as possible, as their length is directly responsible for the vibration the boat will be subjected to, a short bed allowing the engine to vibrate to a more or less disastrous extent. The two long outside stringers can be run from the stern board to the step, and they should be fastened with through rivets or bolts from the outside of the boat. The drawings show how these stringers are jogged down over the floor timbers, but be sure not to jog them so far that they will touch the planking, but leave a space of about ⅜ inch between the bottom and the inside of the planks. Put all the fastenings through the floor timber, plank and stringer. Don't ever fasten through the plank right into the stringer or you will split the plank when you rivet up.

The inside pieces of the bed that the engine actually rests upon will have to be made to fit your engine, and as there is no way of knowing what engine you will use I will have to let the drawing show a bed that will fit the average 20-H. P. motor. These pieces, like the rest of the bed, are of oak, at least 2 inches thick, more if a very powerful motor is to be used, and at least 3 feet longer than the engine. They are to be fastened to the stringers with rivets or bolts and also fastened up through the floor timbers the same as the stringers.

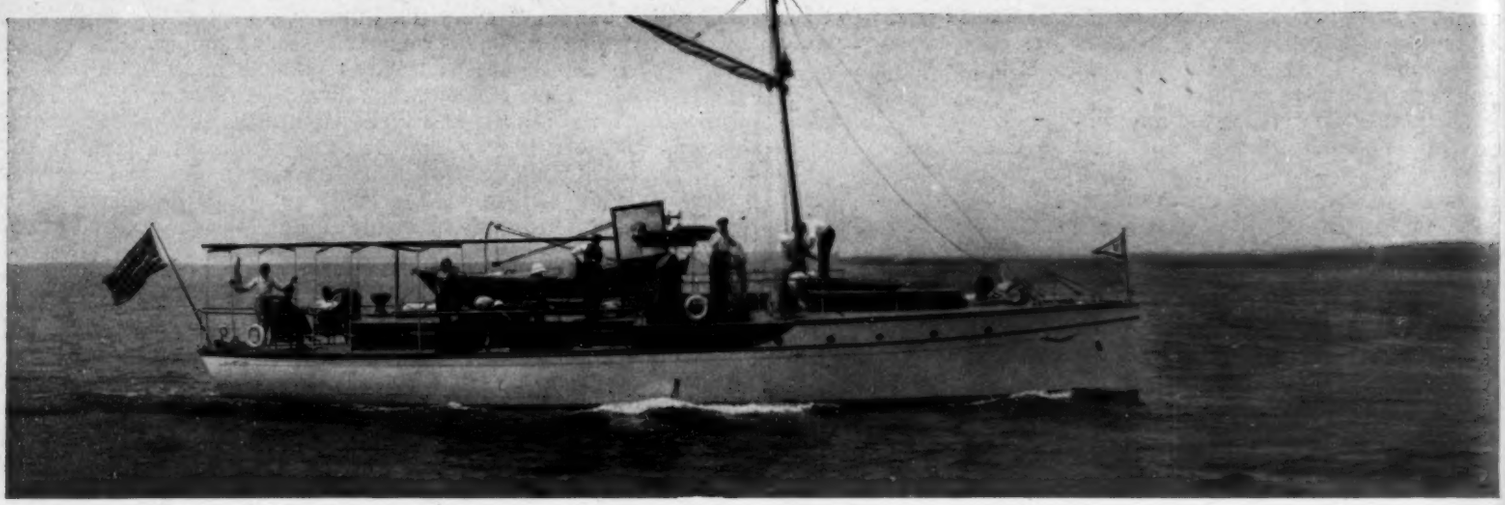
Fit in at least two cross pieces of the same stuff as the bed, and screw them fast with long screws put through the bed from the outside. You can now bore the shaft hole, first fitting on the shaft log on the inside, making the joint between the top of the keel and the log tight by putting a piece of canvas covered with white lead between the two. Screw the log fast to the keel with long lag bolts or through-rivets, being careful that they do not interfere with the boring of the shaft hole. It will be necessary to fit two cheek pieces on the sides of the keel on top of the planking and screw them fast, so that there will be plenty of wood on each side of the shaft. The actual boring of the hole is something that I will leave to your good sense, as it is not a difficult job; only you must be careful that you have the hole correctly lined up with the coupling on the engine, and that the hole is perfectly straight in a fore-and-aft direction. If you have never done any work of this kind it would be advisable to get some one who has had experience to do it for you, as the charge will not be great, and the engine will be able to deliver its full power to the wheel without any binding.

The decks can go on now, and if you have no facilities for bending deck beams it would be advisable simply to run a ridge-pole from the stem-head to the after end of the deck, the after end being 6 inches above the sheer, bevelling the ridge-pole off so that you can plank with ¼-inch stuff straight up from the deck line to the pole. This, of course, will make an inverted V-shaped deck, but when covered with canvas stretched tightly over it and tacked fast under the molding around the sheer it will make a highly serviceable deck. If you have steaming facilities you can bend deck beams so that the deck can be rounded in the usual way. The after deck can be made flat, as it only serves as a rest for the tank, which is mounted upon it on chocks.

There should be a bulkhead built just aft of the engine, but this is not absolutely necessary, although it would serve to stiffen the hull considerably. The bulkhead should be made of ½-inch stuff, fitted up against a timber with the ends against the planks.

(Continued on page 448)

The Month in Yachting



THE CALIPH, VICE-COMMODORE M. E. BRIGHAM'S OCEAN RACER, WILL BE READY FOR ALL THE LONG DISTANCE RACES THIS SEASON

LONG-DISTANCE power boat racing still seems to hold its own in popularity, though a good sign is the fact that the various clubs are giving events of from 100 to 300 miles, instead of long off-shore races of 600 or 800 miles. Primarily the most interest, and consequently the most good, comes from a race in which there is a big fleet competing, and this can never be the case with races of such length that the average man cannot afford the money or time to go. The backbone of all racing is the man who sails his own boat, and it has been the experience of the past that those races for boats under 45 feet in length and over a course that can be negotiated between a Friday and Monday, are well filled, while such events as the Bermuda Race or the Halifax jaunt show a lamentable dearth of entries.

The little fellows are going to have plenty of chances this year to get into the racing game. The Camden Motor Boat Club is planning to hold a race from Camden to New York, while the National Yacht Club will give one the following week from New York to Ocean City, in which most of the Delaware River and Bay boats will participate. There will be a new race from the Colonial Yacht Club to Cornfield Lightship and return, and out on the Great Lakes the Scripps Cruise will undoubtedly attract a bigger fleet than it did last year. The Marblehead Race is on the cards, though as yet no definite information is forthcoming, while the New Rochelle Yacht Club is planning a novel race completely around Long Island to Block Island and return. The Cape May Race for power and sail boats is also scheduled. The Yachtsman's Club of Philadelphia is planning a race to Hampton Roads, while other annual events of the past few years are sure of repetition this season. The boys had better begin getting their engines overhauled, get brushed up on their navigation, get compasses adjusted and pick out their crews, for there will be some lively times ahead.

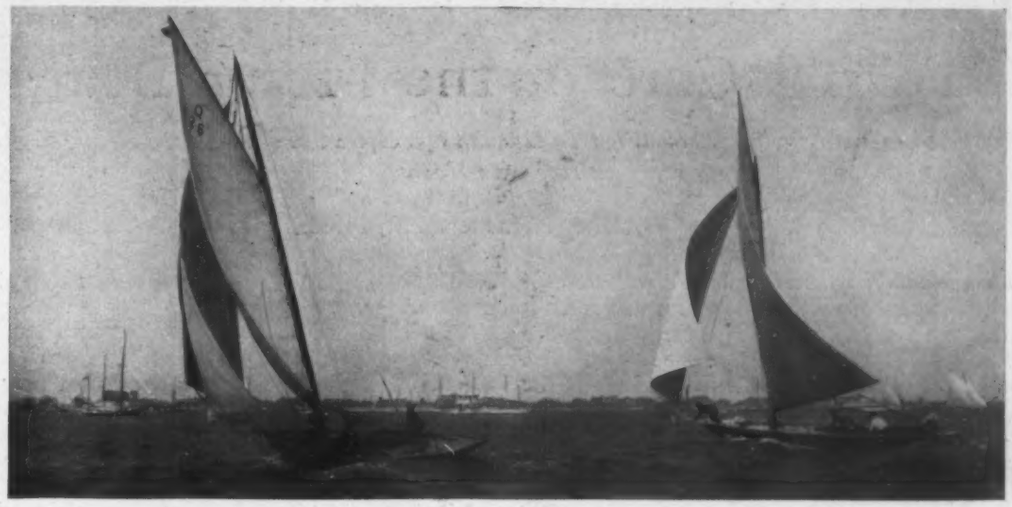
At a recent meeting of the Long Island Sound Yacht Racing Association the following amendment to the racing rules was moved and carried: "Add to Section I, Rule 5, the following: The spinnaker sheet of a yacht of the 31-foot class or any smaller regular class must be carried inside the jib stay." This will do away with the guying of the spinnaker boom away forward and leading the sheet around the headstay, the idea back of the amendment being that the proper sail to carry in the event of the foregoing being necessary, is a ballooner, and that yachts should take in spinnaker and set the balloon jib instead of letting their spinnaker boom go up against the headstay as they do now.

Steps are being taken to call a meeting of the clubs and associations comprising the Atlantic Coast Conference early next Autumn, to take up matters relating to the measurement rule and, in particular, to clear up the question which caused so much unpleasantness in the Manhasset Bay Cup Race last year. This is a wise move and no trouble should be had in framing a rule to cover the points in dispute. There is no question that the present rules have evolved the best type of sailing boat that we have had for many years, and except in a few minor details have worked out to the satisfaction of racing men generally. The rules will probably be let alone with the exception of the one in question, and possibly a few minor changes.

While our so-called "Universal" rule has been adopted practically in all localities where there is yacht racing, in many places its adoption was merely in name, the difficulty of getting the boats properly measured in localities where there was no naval architect or any one who thoroughly understood the method of rating the boats preventing its actual use. However, this difficulty is being overcome with a better understanding of the rule and it is pleasing to note that on San Francisco Bay the Universal rule has just been applied to all yacht racing, its adoption by the Corinthian Yacht Club making it general with local organizations on the bay. This rule was used there for the first time last year in the race for the San Francisco Perpetual Challenge Cup, which was won by the Presto of the Corinthian Yacht Club, and local yachtsmen, generally, agree that the rule is a great improvement over the old Seawanhaka-Corinthian rules which formerly applied on the Pacific Coast.

A regular Donnybrook Fair has been precipitated by the report of the committee appointed at the last A. P. B. A. meeting to define a hydroplane. The committee defined a hydroplane, all right, but the average man who races and knows nothing about higher mathematics is just as much in the dark as he was before, and there is considerable talk of this definition not being accepted at the next meeting of the A. P. B. A., the claim being made that the appointment of this committee, four members of which were not even members of the association, was illegal. President Koerner is out against its adoption and a lively fight is expected. Irrespective of the broken heads, it will be a

mighty good thing to have this matter thrashed out more fully. There is no question that something must be done to simplify power boat racing rules if the sport is to live. Elsewhere in this issue we print a report of the president of the A. P. B. A. proposing a new plan of classification, and outlining matters which are to be taken up at the next A. P. B. A. meeting, April 23.



THE Q CLASS HAS BEEN VERY SUCCESSFUL ON GRAVESEND BAY

The 1912 San Pedro-Honolulu Race bids fair to be the best supported and most interesting event that the Pacific has ever seen, there being at present some eight boats entered with the prospect of a number of others being starters in the long 2,200-mile jaunt. Judging from the way interest in the Bermuda Race has petered out on this side of the continent, it seems as if the idea of the Pacific sailors in holding their big event every other year instead of every year was a good one. For one thing, enough time elapses between the races to lend the charm of novelty, and it is not as hard to get entries as when the race is an annual affair. Then again, those boat owners who have the stomach for it, and can be induced to go, do not have the chance to tire of it as in the case of an event that comes as often as every twelve months. It also allows time to properly work up the race and create interest among boat owners.

The boats this year that are expected to go are: Lurline, which in the past may almost be said to have had a round turn and a half-hitch on the cup; the schooner Seafarer, built for L. A. Norris some two years ago, and which he sailed from the New England coast to San Francisco by way of the Suez Canal and the Indian Ocean; the schooners Marion and the Aggie, of San Francisco; the Gwendolen, of the Seattle Yacht Club; the Hawaii, representing the Honolulu Yacht Club, and the new schooner which is now being built at the Hawaiian Islands, about which much secrecy is manifest. This fleet ought to make a cracking good race, as most of the boys who sail the boats are well known on the Pacific Coast, many of them having taken part in other Honolulu races.

With the opening of the Panama Canal it is probable that the much-talked-of race from New York to San Diego, California, will be an assured thing. A committee has been appointed in the East to draw up courses and rules for the cruise, and to get entries. The make-up of this committee is Horace E. Boucher, of the Larchmont Yacht Club; Henry J. Gielow, New York Yacht Club; M. M. Whitaker, The Motor Boat Club of America, and Charles Mercer, corresponding secretary of the committee. Boats eligible for the cruise will be those yachts powered by internal combustion engines and from 70 to 100 feet in length; steam yachts up to 175 feet load waterline; sail and auxiliary schooners and yawls, 50 to 100 feet overall length.

The route selected tentatively is from New York to Beaufort, N. C., 500 miles; Santiago, Cuba, 950 miles, through the Windward Passage; to Colon, 800 miles. From Colon the yachts will proceed through the Panama Canal to Panama. The first port selected on the northward Pacific journey is Managua, Nicaragua, 800 miles; then Tehuantepec, Mexico, 650 miles; Manzanillo, 800 miles; thence to San Diego, Cal., a distance of 1,200 miles.

The Yacht Racing Association of Gravesend Bay, which has done so much to promote interest in sailing races in New York's lower bay, has appointed a committee to revise its constitution and by-laws, feeling that this was a necessity to broaden the scope of the Association. It is due to the efforts of the Association, which is made up of clubs situated on Gravesend Bay, that the racing sail boat has not entirely given place to the power boat; and the Saturday afternoon races held by the clubs have furnished excellent sport over courses that are not ideal owing to strong tides and traffic in and out of New York harbor. New courses are being laid out to do away with "the merry-go-round."

A CLOSE START DURING LARCHMONT RACE WEEK

Taking Care of the Motor Boat

How to Treat Her Before She Goes Overboard and What To Do with Her After She Is Afloat To Keep Her from Taking a Cruise on Her Own Hook

By WARREN H. MILLER, M. E.

THE season for it arrives shortly after the waning of the crocuses. Ever since I was "Cap'n" of a 15-foot knockabout at the advanced age of eleven, going into commission has always been indelibly associated with Lent and apple blossoms. There comes a time when the spring sun is warm and balmy; the new grass, violet-strewn, lies green on the bank in every village line; the small boy, coatlsss and hatless, plays marbles on the sandy sidewalks; the pious wend their way churchward to the sound of the Lenten bell, and the perfume of the fruit-tree blossoms is everywhere.

It is the season of the caulking mallets. At the end of every street leading down to the blue bay rise the tall masts of some big three-master, riding high on the marine railway, her huge body overshadowing the houses along the waterfront, and her topmasts rising aloft like spires. The click, click of the caulking mallets is incessant and every breath wafts you the odors of tar, turpentine, pitch and oakum with which the schooner's fat sides are being stuffed.

To me the click of the caulking mallets was always the call of the sea. Other boys could have their tops and marbles, or pass the eternal baseball, but for me the first day of real spring weather was always solemnized by an inspection trip of the entire waterfront. Next, each impromptu shipyard under the paper mulberries in the warm spring sunlight would be inspected, where "Cap'n" so-and-so would be knocking together a small sloop or "skift." Finally the juvenile skipper would arrive in Cap'n Jack Milheim's yard, where a certain beloved craft lay bottom up, supported carefully, bow and stern, by billets of driftwood, her muddy and weathered copper paint simply crying for the brush and the scraper. Needless to add that the hole in the bank account expended next day for paint, linseed oil, varnish, brushes, rope, marlin and "fittin's" would be large enough to heave a bushel of fishnets through!

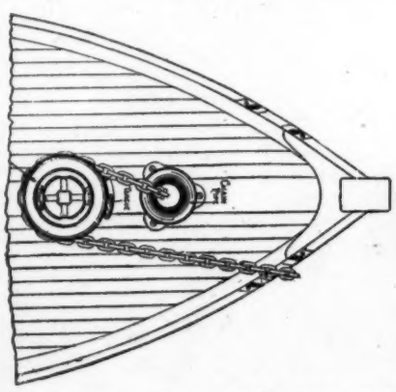
Nowadays another type of craft and another kind of sailor has come, and come to stay. Even the oyster sloop has discarded her graceful spars and grown a horrible excrescence resembling a tug pilot-house while a big "work" engine threshes away in the cabin. Every good hauling-out ground, every available beach is crowded with the ubiquitous motor boat—everything from a 16-foot runabout to a 50-foot power cruiser. Their owners are a jovial and adventuresome lot, possessing the true spirit, even though some of these seafarers know little of the habits of the sea. In fact, with some of them it is their first offense; wherefore some practical hints on what to do and when not to do it, from one who has navigated much salt water, may prove welcome.

To begin with, if your motor boat has just passed her first wintering, you have not such an awful lot to do to get her afloat on the pickle once more. She may have dried open so that you can lay a belaying pin in the cracks, but, by the same token, she will swell tight again, so all she needs is a good daubing of the cracks with thick white-lead paste. Before doing it, however, you will scrape down the ridgy rolls of paint where she swelled shut last year, scrape off all mud and barnacles, and sandpaper everything smooth, brushing out the debris of the operation from the open seams. To close these nearly tight and avoid a prolonged swelling up period when overboard, with attendant warping of the cabin flooring, wet her down inside with half a dozen pailfuls of water, repeating the operation several times. Then follow with your white-lead paste and putty, rub down when partly dry and you are ready for paint. If she has had many seasons' use she may need re-caulking, especially below the waterline.

As so much has been written about the proper way to paint a boat, I will not go into the details of it here, except to give a few hints that will prove useful in doing the job in a ship-shape way.

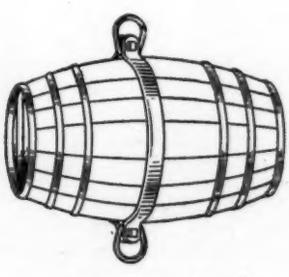
As most owners never use any other color than white I will give here the best way to get that fine dead-white you see on steam yachts and other highbrow craft. First, two coats of inside white. It is a thick, heavy-bodied linseed oil paint, and you will be generous with it as well as with the elbow grease to spread it on withal. When the second coat is dry, follow with the mineral paint known as Yacht White. It comes in a can brimful of quick-drying liquor, and you can stir until you are black in the face before you will ever get the top paint thick enough to put on. Now, do not go ahead blindly and paint it on anyhow, for it will be sorrowfully thin and transparent, because the liquor has not enough viscosity to hold the zinc white in suspension. To do a proper job with it get an empty can and pour off half of the liquor, leaving just enough to keep the paint thick so that it will spread on snowy and glorious. Keep adding liquor from the other can as you go along. There will be enough to use all the Yacht White in the can. Two quart cans will suffice for a 35-foot power cruiser, one for a 20-foot launch.

For below waterline work you have many colors of copper paint to choose from—light green, dark green, red, copper brown



Vertical type of chain windlass which can be worked with one hand.

Combination internal geared winch windlass and bitt.



Type of beer-keg mooring.

Riding chain with gafftopsail hook, and swivel for mooring chain.

and natural bronze. The light and dark greens are pretty with Yacht White, and natural bronze with natural varnish finish, but if your berth is muddy at low tide, better choose copper brown. In any event, to get it on properly you must know something about snapping a waterline. Most amateurs, if left to their own devices, will make heroic efforts to perform the impossible and will paint the juncture of the yacht white and copper green ever so carefully to a pencil line, but the result will be a quavering green border, with here and there unwarranted excursions into white's teritory and wisps of green-white where said digressions have been carefully thumbed out.

The way a professional boat painter goes at it is this: He first plumbs the stem of the boat; next, drives a pair of uprights on either side of her a foot or so beyond bow and stern respectively. Then he takes two long straightedges and nails them horizontally across the uprights, exactly level, at the height of the waterline, bow and stern. Sighting across these straightedges the whole boat appears as a midship section, and a string snapped taut along the waterline will appear foreshortened so that the slightest dip or irregularity in it shows up at once. The string used is a stout mason's cord, and having once sighted it so that it all shows just above the straightedges, it is tacked fast here and there and the green is painted down from it. In painting the all-important dividing line the cord guides the brush bristles so that you get a full body of paint without any stray bristles lapping over and leaving fresco effects on the yacht white. Both the Yacht White and copper bottom paints are quick-driers, so that you can go overboard soon after the last of it is on.

The details of getting overboard are mainly connected with the borrowing of some 4-foot lengths of iron pipe or else 4-inch wooden rolls, a sufficiency of skids, and a block-and-falls "taykle." I am much more interested in what you are going to do with her when she is at last riding buoyantly on the pickle. More boats go ashore, go adrift or go a-visiting all over the anchorage and cut up high jinks when their owners are peacefully abed or at business, through cheap amateur mooring tackle than any other one thing. I want you to consider where this craft of yours is to lie through the season. If it is your first season you won't consider at all. You'll put her out in the first likely hole in the anchorage, let her ride to her stream anchor hove up as short as you dare, and rush off to business—late, of course. She will not be there when you get back. There will, however, be a mass meeting of indignant yachtsmen awaiting you, with a story to tell of the career of "that boat" since last you laid eyes on her, and you will then be introduced to the grinning and weatherbeaten "Cap'n" who caught her and put her in the pound for you.

Another favorite trick of the beginner is to moor one end of his craft to a corner of the dock and then take his anchor out in the dink, diagonally, and drop it over just as far as the rope and the boat and the bow painter combined will let him. Fine! He has seen rowboats tied that way, why not a power cruiser? The tide was with him, of course—it always is when anyone sets out to do a fool stunt. As soon as the tyro's back is turned the tide slacks and starts to rise. It industriously starts that anchor, an inch at a time, until it has it trailing along in the mud like a cat's claw. The more the boat swings her stern out the more broadside to the industrious tide she presents, and the quicker she swings, until she is at last deposited triumphantly, anchor and all, alongside the dock.

Is that enough? Oh, Lord, no, not near enough! She can go under the stringpiece; and the tide never rests until all of her that *will* go under the dock is sequestered there. That will do for the nonce; but presently her deck fetches up against the bottom beams of the dock under the spiritual uplift of the rising tide. Ten minutes more and she is jammed so fast that a team of horses could not budge her, and by the time the frantic owner arrives on the scene he has the alternative of pulling up the dock or taking a correspondence course in a submarine college.

All of which is painful to an observant public; but, as a matter of fact, you owe a duty to the community as soon as your boat is abroad on the waters which no shortness of pocketbook should allow you to shirk—that of properly mooring your craft. Get an old carwheel if you cannot afford anything better, but to my mind I had rather be in debt than without a good mushroom, galvanized, of course, with a forged iron ring in its shank—about ten pounds of "mush" for every foot of length of your boat, especially if you are in an exposed anchorage or on poor holding ground. There are several patent mushrooms on the market with bulbs on their shanks, designed to make the shanks lie flat on the bottom and the bowl "bite" better, that have proved very satisfactory.

The proper place for the shackle at lower end of the chain is around the ring of the "mush." Here it does not get the grinding wear it would if secured to the shank itself. You also will want a shackle and a swivel at the upper end of the chain just under the buoy, and, for a large boat, a swivel at the lower shackle as well to keep the chain from twisting as the boat swings round and round her mooring. These swivels should be wrought iron, galvanized.

For motor boats 30 feet and under, the chain should be ¼" and the flat-linked sort will get you into fewer troubles than any of the "curlicued" varieties. Five-sixteenth is the safer link for cruisers from 30 to 40 feet, and ⅜" for 50 feet. And don't neglect to put a few turns of No. 16 galvanized iron wire through the eye of the shackle pin and around its link. She'll unscrew if you don't, sure as cats are cats.

There are so many varieties of buoys in the buoy family that one infers that they are all descended from the Old Buoy himself, so to speak. With prices from $1.50 up to $10, and styles ranging from modish $4, 12" x 15" tin cans to *chic* cork effects in lozenge and cylinder vogues at $3 up, you have all kinds of choice. However, most motorboatists have, in the natural course of events, become posessed of a beer keg, and its conversion into a boat buoy does not require a revival meeting either. Steal enough ¾" gas pipe to go through the keg with an inch left over on each side; cut enough thread on both ends to pass well through the stave and you will then be ready for two holes, a big one and a little one. Put 'em in opposite sides of the keg, the little one the diameter of the pipe less the thread bottoms and the big one to fit a ¾" x 1¼" pipe bushing. Gorm the threads over with white-lead paste, screw on the bushing, and screw in the pipe until both bushing and threaded end are home; secure with a locknut on the projecting end. A simpler method, but one not so surely watertight, is to drill your holes just large enough to pass the pipe, slip it in and secure with a locknut on each end, wrapping a turn or two of cotton wicking saturated in white-lead paste under the locknuts before screwing tight. You can buy at the ship chandler's, or have made for you by a blacksmith, a set of buoy hardware consisting of a ring bolt and ring nut to go through your buoy. The ring nut requires a locknut and a cotter pin to insure you against unscrewing and going adrift.

Still another method is to have an iron strap made, in two halves, to go around the keg in the center, held in place by two bolts where the ends of the straps come together (these ends being bent over to face each other) and a ring or heavy shackle slipped under the bolts before setting up on them.

Lately a new type of buoy has come on the market, a sort of modified spar buoy made of white cedar and painted with red and white stripes like my lord, Sir John Falstaff, his leg. The spar type seems especially adapted to power cruisers with extension trunk cabins, upon the roof of which one is compelled to assume an undignified and defenseless posture in reaching for a can buoy with the boathook.

Between the buoy and the boat goes your riding chain. For yachts this is usually 42" long with a pair of gaff-topsail hooks in one end and a galvanized iron cable eye in the other. The riding cable is bent to this, and there should be enough of it so that you can veer out all you want to to dodge some drifting

Mushroom, and bulb shank mooring anchor.

neighbor or in other like emergency. For large motor boats 20 or more feet of riding chain belayed around the bitts and disappearing below through the chain scuppers is more discouraging to harbor thieves, particularly if there is a good padlock on the eye which locks both sister hooks.

For any boat under 30 feet, rope for your anchor and six feet of riding chain for the mooring, shackled to a ring in the bitts, is a good combination. The "candy" windlass for a boat of this size is the one-hander shown in the illustration in which one of the "niggerheads" is replaced by an internal-geared windlass drum, 2⅜" diameter in the smallest size. With a turn or two around this you can start any anchor that ever bit the mud, and are not reduced to the harrowing necessity of snubbing the anchor rope up short and ripping it out with the engine.

For anything over 30 feet, the chain's the thing, particularly now that we have chain windlasses on the market that one can work with one hand, while steering the boat in getting under way with the other. You can get the vertical type of chain windlass in two sizes for 5/16" and ¼" chain, the larger being about 10" diameter by 3½" high and the smaller 7" x 2¾".

(Continued on page 452)

Types of mooring buoys.

Engine Noise and Vibration

Up to the Present Too Little Attention Has Been Paid to Producing a Quiet Internal Combustion Engine. How Some of the Noises May Be Deadened and Stifled

THAT the last few years' development has placed the medium powered marine internal-combustion engine in a position to rank with steam as a standard power in point of serviceability no one will deny. That, however, there is still much room for improvement in making the motor a desirable shipmate, anyone who, like the writer, has had the experience of cruising over 3,000 miles in one Summer in a small power boat is equally aware.

The real "bugaboo" of the internal combustion engine for other than commercial use is its noise and vibration. I do not refer to the noise of exhaust, as that is external and may be muffled completely if one is willing to suffer the necessary small loss in power, but to the various taps and clicks and rattles which become as tiresome as a room full of typewriters when one has to live for any considerable time in their proximity. There must be, of course, some noise in the engine room, whether the power be steam or internal-combustion, but the character and amount of the noise varies so much that some engines may be said to be practically noiseless.

In the first place let it be said that most of these unpleasant noises arise in the valve gear. It would seem as though in their anxiety to have valves open and close at precisely the right moment engine designers had overlooked the disagreeableness of having to listen to the continual clatter of poppets. It is for the makers to say whether cams and springs may not be so designed as to close the valves more gently without impairing the efficiency of the motor; if so, it is indeed "a consummation devoutly to be wished." The sleeve-valve motor if proven suitable to marine service should be a great boom to the small boat cruiser through its more nearly silent action.

There is less chance for improvement in the actuating gear of the valves, because a noisy gear means lost motion, and the manufacturers have always done their best to overcome this in order to raise the efficiency of their engines. Nevertheless, the use of a double helical gear would make for greater quietness than that of the most perfectly meshing spur gear, though it would be more expensive than the latter to put on the market.

When all possible improvements are made, however, there is still bound to be considerable noise which it is impossible to eliminate from a high-speed reciprocating engine (as the marine motor is) actuated by quick, periodic impulses. Yet it is possible to reduce this to a minimum where the engine is contained in a compartment of its own by sheathing the walls and bulkheads with thick asbestos millboard. It is a good idea not to paint the millboard thickly, but to leave it with as rough a surface as possible, the better to break up the sound waves. The use of this sound damper will be found to give great relief where the engine is a noisy one, while it will render a smooth running motor almost inaudible outside of the engine room.

Quite as unpleasant as noise, and much more serious on account of its consequences upon the boat, is excessive vibration. In fact, vibration is the worst enemy to all classes of framed structures, of which boats and ships are one. It has been said that the continual tremble in which a steamer is kept by her engines has an effect more destructive than the worst stress of weather upon the ship.

Especially is this so in cases in which the rate of vibration of the engines (i.e., their R. P. M.) coincides with the natural vibration rate of the ship's structure, for then what the physicists call "sympathetic vibration" is set up; and this may reach such alarming proportions as literally to shake a vessel loose. The example of a company of soldiers falling out of step in crossing a bridge so as not to get it swinging in time with their march is a familiar illustration of sympathetic vibration and its danger.

Fortunately for the life of steamers their engines do not frequently revolve fast enough to cause this most detrimental form of vibration to be set up in the structure of the hull; but quite the opposite is the case of modern, lightly built power boats with their high-speed engines.

Engine builders have long recognized the evils of vibration, and have tried to guard against it by counterpoises and by building multiple-cylinder motors; but in a reciprocating engine, in which a heavy mass, or masses are continually in motion to and fro, it can never be entirely eliminated. For this reason the wise boatman will note carefully at just what engine-speed the vibration in the boat is worst—in other words, at what speed "sympathetic vibration" occurs—and then will take great pains to avoid that particular rate of R. P. M.

A Dash Across the Gulf of St. Lawrence

Being Part of the Voyage of the Fifty-Foot Auxiliary Schooner Schwalbe from Halifax to Dr. Grenfell's Labrador Mission

By J. T. ROWLAND

THE OLD MAN

SCHWALBE ran northward through Canso Gut in a drizzle; but before the bold land of Cape Breton Island had faded into the haze astern we had it clear once more with a fresh S. W. breeze on the port quarter which teased us into draping her somewhat stumpy sticks with what the "old man" drily termed "her Irish Channel kites."

Granted that Schwalbe's rig would not make a Gloucester seiner green with envy, still the sail did shove her ahead a knot or so faster, and as a result the 40-H.P. Buffalo down in her in'ards began to tune up merrily.

Bob sighed deeply with relief—"There, *now* the old buzz machine is going as it should. That simple guy has only been running her half open ever since we left Halifax!" and for the first time in two days he looked really happy.

"What time is it?" asks the "old man" from the wheel, whereupon our miniature ship's clock obligingly tinkles out four bells. He glances over his shoulder at the dial of the patent log, and appears satisfied.

"Ten knots; very good, very good. I expect," continues he, "it's just as good to stick her straight across, eh? Be up to the Magdalenes by to-morrow morning, and make the North Shore some time next day—with any kind of a chance, that is; eh?"

Bob and I are rated as passengers, and so are somewhat privileged. We express unqualified approval of whatever course will most speedily get us across the Gulf of St. Lawrence to the Deep Sea Mission Post in the Mecattina Islands, where our real voyage to the North is to start—in another vessel.

Something in the weather makes me reminiscent:—

"We got a peach of a thunderstorm just about here last year in the Yale. Old Larry was below trying to French-fry some Murphies when everything went off the top of the stove, and the grease got afire all over the place. I was on deck shortening sail when I heard a roar, saw all the deck-lights turn red, and—what you laughing at?" I ask suddenly.

"Look astern," says Bob, and then sings out down the skylight: "Get your gear secured, Cookie, and screw up the ports; there's something coming!"

There was, and fast. I caught the skipper's eye and glanced up at the sail, but he only lighted his pipe and spat, contemptuous-like, overside. "Get me that binnacle light and put on your oilers," said he. "Do this pilot-boat rig good to work a little for a change."

The sun was some time set; and, once the great thunder clouds with their ink-black drop curtain of driving rain had blotted out the afterglow, we found ourselves plunged suddenly into night. Bob and I stumbled below into the cabin and broke out our oil clothes; but we had them still in our hands on deck when there came a hot puff, a few great drops, and then all at once a white chaos of lightning-riven fury burst shrieking upon us.

Still at the wheel, the skipper is howling like mad; but his words scarcely reach us. I haul Bob's head over to my face and yell, "Leggo main halyards, Skipper and I secure it!"

That sail seems big enough now, but we get it tied up after a fashion, thanks to the continual illumination overhead.

"Leave the jib and fore-sail on her," shouts the skipper.

Suddenly I look about for my oilers and, lo and behold! there is the engineer calmly sitting in the lee of the dory with them on. Well, they are no use to me now anyhow—the ocean itself is no wetter.

"Told Ralph to shut her off and save gas," says the skipper with a grin. "She's alright now, you boys go down and dry yourselves off. Say, this is what they brought me up to call sailing!"

It was, indeed. A short, slinging chop had already sprung up on our quarter, and the wind showed no sign of abatement, though the lightning and rain were quickly passing eastward. In the little cabin Bob and I came upon a huddled form unconscious on the floor. It was Cookie, our ex-P. & O. steward, faithful unto—not death I am glad to say. We had some argument as to whether it was seasickness or just pure scare.

"See who's here!" says Bob, and, picking him up somewhat after the fashion of a mother cat transporting kittens, he proceeds to lug him up and administer fresh air treatment in allopathic doses. Dry clothes and a hot mug-up next; then we change the watch and relieve the wheel while the skipper gets a "thaw."

All night the breeze continued, but hauled westerly, so that by the morning watch Schwalbe was close hauled under reefed mainsail and all other sail with the "coffee box" slamming her ahead through the lop—and, take it from me, the Gulf of St. Lawrence is where the word "lop" was born!

"Damnation—galley's flooded!" are the irate skipper's first

DECK SPACE WAS AT A PREMIUM

THE QUEBEC SHORE OF THE GULF IS BOLD LAND

ALL TAUT AND DRAWING

words when he peers over the hatch coaming to scent the weather at daybreak. "High dawn, too; wind all day! How ye headin'?"

"Nor', nor' east, sir."

"Best you can do? Well, keep her joggin'. Nothing carried away yet? All right." And presently I hear his voice below berating the steward in true Western Ocean style for leaving the galley ventilator turned to windward.

It is a long, dreary day; under sail alone we would be practically hove to, but the engine keeps her from stopping dead at every plunge into the short, combing chop. We have left the red strand of the "lonely Magdalenes" astern during the morning, and are fighting our way North, toilfully but with surprising progress. As the skipper remarked, "An engine is great stuff—it seems to just sort o' take up on the slack."

The skipper "caulked off" before lunch, so in the afternoon it became the crew's turn—meaning Bob and myself. Now, Schwalbe was a two-cabin boat with separate deck houses, one abaft the main-mast, and the other between the fore and main-masts. This is a better scheme structurally than to have the cabin trunk run continuously aft, because it allows the main-mast to come up through solid partners in the deck, thereby giving it greater support than if it ran up through the cabin roof; but it made that part of the fore cabin in which there was headroom rather short. Since the roomy after cabin had been pre-emptied for the exclusive stabling of forty concentrated cast-iron horses and their keeper the old "forward saloon" had perforce become main cabin, as which it was "rather snug, don't you know," to quote an unofficial inspector at Halifax.

"It's the floor for mine," I told Bob between jumps, hanging on to the mess table, "I wouldn't insult my length of frame by trying to drape it over that child-size transom," the fact being that the starboard bunk had been cut into to make a locker. Why not use the port one, you ask? That happened to be the weather side—which is "nuff sed."

Bob smiled. "How cheerless!" quoth he, and proceeded to expound on the mouth-organ a touching ditty which commences "Steamboat Bill, steamin' down the Mississippi——"

Floor or not, before he got to where Mr. Bill secures a berth as "pilot of the ferry to the promised land," I had shaped my course for Nod's Island, and was peacefully oblivious of wind, sea and discomfort. At last becoming dimly conscious of existence once more, I open my eyes and try to peer through the gloom to discover some familiar object. I am sailing my little 30-foot sloop up the Sound from New Haven in the middle of Winter; night has come down and with it fog. There goes the Middleground horn now! I rub my eyes and discover it is only Bob, snoring alongside of me. Then the recollection comes back of being out in the middle of the Gulf of St. Lawrence in Schwalbe; and I remember with a sudden pang that the skipper has been on deck since two o'clock. It is pitch dark, but I grope my way aft, pulling on a coat and slicker the while.

"Wind's fairer, ought to make the land by daylight," says the old man, and dives below without further ado.

Schwalbe is going famously now with sheets started and the water boiling a-lee. It is clear and crisp, and there, a little on the lee bow, stands the North Star, visible for the first time on the cruise.

"Why, we've headed west of north!" I think, and look closer at the compass to make sure I have read its lettered points aright. "Strange; even allowing for the variation we ought to have the North Star a bit to windward." Then it suddenly dawns upon me that our trusted "box o' navigation" is about two points out. "And we should have been making a fair wind of it all this time," I groan inwardly.

On thinking it over, however, the error seems not an unmixed evil. Our leeway certainly must have been considerable; so probably if we hold North (true) now, we will just about fetch Cape Mecattina, which is a very good place to make the land at night, as it is fairly high and visible from quite a way at sea. So I give her another spoke and a bit more sheet; and Schwalbe lifts her stern to the quartering seas.

An age seems to pass thus in enchanted silence.

"What ye doin'? Makin' a fair wind of it?" The skipper's angry voice breaks into my revery.

"Yes, sir, we've been coming too far West—compass two points out."

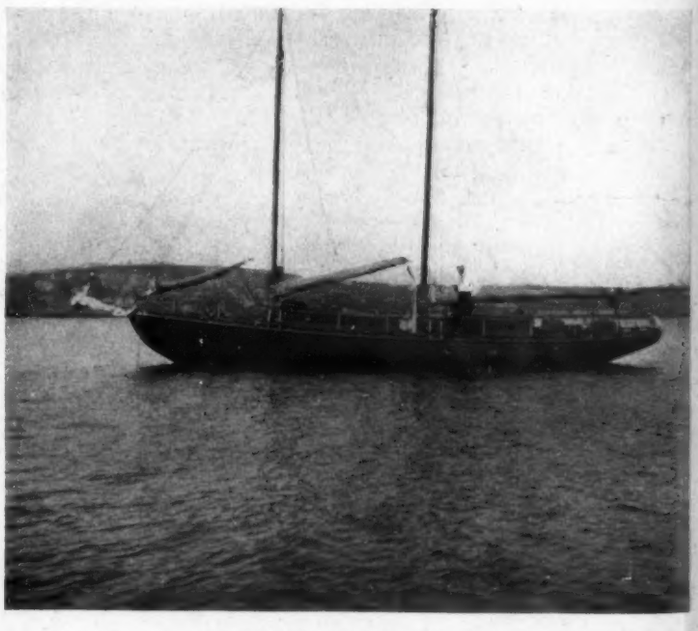
"Out is she? When the blazes did you find that out?" He swings up onto deck and stands a moment gazing at the stars and water. Then suddenly, "Look up here, young man," he calls, "what's that broad off to port there, see! There she goes again!"

"Flashing light, sir; didn't know they grew up this way."

"Come West, eh? well I should say we had! Young man that there's the East Cape of Anticosti? May I be everlastingly thundered if it ain't!"

We were only 100 miles or so out of our course, but it was no fault of the skipper's, as he had come aboard for the run after the vessel was supposed to be in full commission.

Cape Whittle we made by morning, and Little Mecattina Island by noon, when the cracking Norwester that we had persisted in bucking for the last twenty-four hours suddenly deserted, and we were obliged to complete the 20 miles of our run to Great Mecattina and the Post on the dregs of Ralph's extra "gas." But it sure had been a fine thrash!



SCHWALBE'S RIG WAS MODEST

The Rules of the Road, and the Reasons for Them

An Enlightening Discussion of Some of the Rules Relating to Safety at Sea. How to Act in Some of the Situations Which May Arise While Following Them

By CAPTAIN E. T. MORTON

NOTHING is more important to the safe navigation of the motor boat, especially those of the smaller sizes, than a thorough knowledge and understanding of the Rules of the Road by the skipper or owner. The law says that every boat shall have two copies of the pilot rules on board, and takes it for granted that the owner of a small, unlicensed boat thoroughly understands these rules. While a number of the most frequently used rules are known by amateur skippers, there are probably very few who are thoroughly familiar with all of them and appreciate the various situations which may arise, under even a strict interpretation of them. Some confusion is also caused by the conflict of the international rules with the rules for inland waters, though the waters where each are applicable are clearly defined.

In taking up this subject, it is impossible to discuss all the international and inland Rules of the Road, within the space allowed. Copies of the laws, rules and regulations may be obtained for the asking at any Custom House and at the office of the Local Inspectors of Steam-vessels. The rules are written in plain language and are clear to the minds of those who understand sea terms and usages.

In this country it is the custom for pedestrians and vehicles to keep to their right hand when passing one another. The idea pervading the Rules of the Road is also to keep to the right whenever possible. In nautical language it is called "the law of port helm."

The water is called the great highway between nations, and all ships at sea, in charge of officers licensed by their respective governments, obey the International Rules of the Road. These regulations for the prevention of collisions at sea provide for *all* cases which may occur in passing, whether meeting, crossing or overtaking one another, without exchanging any signals between ships. Diagrams may be drawn, or small models made to move about, to illustrate all of these different situations, showing when it is the duty of either vessel to keep clear, or to hold her course and speed.

When in bays, harbors and rivers the Inland Rules of the Road are in force; and all ships, large and small (except certain classes of motor boats), must be in charge of a local pilot.

Let an observer stand on the middle of the old Brooklyn Bridge late in the afternoon of any week day and he will see a vast number of vessels on the surface of the river below him moving in every direction, the most congested place being usually between the Battery and Governor's Island. Large passenger steamers appear on their way from North River piers to Long Island Sound. Ships from foreign ports are entering or leaving their docks, being pushed around by busy tugs blocking up one-half the width of the river. Steam-lighters, carfloats, ferryboats and tows of every description mingle in this scene all bound upon their own particular errands.

Every day it is the same, yet not for one minute does it remain the same. All are in motion, gliding past each other with ever-changing positions; whistles tooting, engine-room bells clanging, yet all being carried on with skill and despatch. It is a wonderful picture, this panorama of floating craft, ceaselessly going to and fro; one may well gaze on it with admiration.

The Law of Port Helm. When two vessels are meeting head on, keep to the right by porting the helm, indicating it by one short blast of the whistle.

In clear weather there is no need of any trouble, if each and every one will obey the rules, answer signals and navigate with due caution. It is a common highway, open to all, with equal rights. Yet many cases occur which the law does not cover directly. The rule does not give a large ship the right of way over a small one, yet when an ocean "greyhound" moves up or down the North River the ferryboats halt on their way and tugboats hurry hither and thither to clear the fairway until the monster ship is passed. Their right of way is understood and recognized, being of such immense length and deep draft that they cannot deviate from their courses. The quicker they are allowed to pass, the sooner ordinary traffic may be resumed.

It is said that "The Rules of Navigation never steered a ship," and the same may be said of the Rules of the Road. They are, however, the basis of an orderly system in force upon the water; their efficiency depends upon their interpretation and practical application.

I will not attempt to give here the entire set of Rules of the Road. It is not necessary, as many of them are so plain as not to need amplifiication, and are well understood. Such extracts from the Steering and Sailing Rules will, however, be given as are deemed necessary of further explanation to the amateur, with suggestions as to their use.

IV.—STEERING AND SAILING RULES

PRELIMINARY

Risk of collision can, when circumstances permit, be ascertained by carefully watching the compass bearing of an approaching vessel. If the bearing does not appreciably change, such risk should be deemed to exist.

When crossing vessels are yet several miles distant from one another, the compass bearing is useful to detect any change of bearing. On nearer approach, a more convenient method is to take a range on the other vessel with some object on board, as, for instance, a shroud or backstay, piece of brass or other mark on the rail. Any place near amidships will serve the pilot to get a range when his vessel is keeping a steady course. If the course is changed, any alteration of bearing would be better shown by the compass.

SAILING VESSELS

ART. 17. *When two sailing vessels are approaching one another, so as to involve risk of collision, one of them shall keep out of the way of the other as follows, namely:*

(*a*) *A vessel which is running free shall keep out of the way of a vessel which is closehauled.*

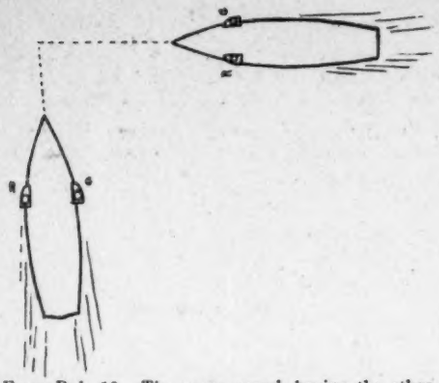
(*b*) *A vessel which is closehauled on the port tack shall keep out of the way of a vessel which is closehauled on the starboard tack.*

(*c*) *When both are running free, with the wind on different sides, the vessel which has the wind on the port side shall keep out of the way of the other.*

(*d*) *When both are running free, with the wind on the same side, the vessel which is to the windward shall keep out of the way of the vessel which is to the leeward.*

(*e*) *A vessel which has the wind aft shall keep out of the way of the other vessel.*

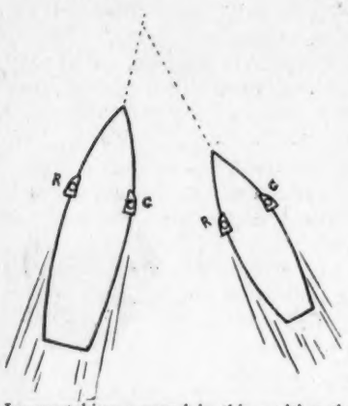
By this rule, a vessel sailing by the wind on the starboard tack (that is, with the wind on the starboard side) has the right of way over all other vessels under way. A vessel on the port tack must keep out of the way of a vessel on the starboard tack, keeping off and passing astern of her, if necessary. Yet a ves-



From Rule 19. The upper vessel, having the other on her own port side, has the right of way in crossing.

sel close-hauled on the port tack has the right of way over one which is running free. A vessel which has the wind aft shall keep out of the way of all other vessels under sail.

When two vessels cross courses on different tacks, the old rule of keeping to the right is evident. At night the vessel on the port tack would see to leeward (that is, on her own starboard side) the red light of the vessel on the starboard tack, opposed to her own green light. The vessel on the port tack must port her helm; that is, keep off to the right hand, show her red light to the other vessel and pass astern of her.



In overtaking a vessel in this position the foregoing rule and Rule 24 are apt to be confused. The vessel on the right is the overtaking vessel, but when she reaches this position she has the other on her own port hand and may try to claim that she is a crossing vessel. She is, however, an overtaking vessel until clear.

STEAM VESSELS

ART. 18. RULE I. *When steam vessels are approaching each other head and head, that is, end on, or nearly so, it shall be the duty of each to pass on the port side of the other; and either vessel shall give, as a signal of her intention, one short and distinct blast of her whistle, and thereupon such vessels shall pass on the port side of each other. But if the courses of such vessels are so far on the starboard of each other as not to be considered as meeting head and head, either vessel shall immediately give two short and distinct blasts of her whistle, which the other vessel shall answer promptly by two similar blasts of her whistle, and they shall pass on the starboard side of each other.*

The foregoing only applies to cases where vessels are meeting end on, or nearly end on, in such a manner as to involve risk of collision; in other words, to cases in which, by day, each vessel sees the masts of the other in a line, or nearly in a line, with her own, and by night to cases in which each vessel is in such a position as to see both the sidelights of the other.

It does not apply by day to cases in which a vessel sees another ahead crossing her own course, or by night to cases where the red light of one vessel is opposed to the red light of the other, or where the green light of one vessel is opposed to the green light of the other, or where a red light without a green light or a green light without a red light, is seen ahead, or where both green and red lights are seen anywhere but ahead.

Here is the old law of port helm again. Beginners are often confused by the way the terms "port" and "starboard" are used in handling the *wheel*. When the *helm* is put to port, the *wheel* is turned away from the port and toward the starboard side. The vessel's head is also turned toward the starboard side as it swings in the same direction as the top of the wheel. This statement needs a modification, as there are exceptions to it. Most steering gears are rove so that the vessel's head moves *with* or in the same direction as the wheel, though many river boats, New York tow-boats, as well as other small steamers and many motor boats have their steering gear rove off so that the wheel moves in a contrary way to the head.

Where the head moves contrary to the wheel, it reminds one of prying on a lever. In steering with a tiller, it is pushed in an opposite way to the rudder and the vessel's head, yet it does not cause any such confusion as a wheel with the gear reversed. These different customs are of long standing and seem likely to continue.

At night, in passing on a port helm, each vessel sees the red light of the other. If passing green to green, strict watch must be kept that the approaching vessel does not port and show her red light, as often happens. This is one reason why it is best to blow a signal and receive a proper answer, as it will remove any doubt as to the intentions of both vessels.

When some distance away, or when a strong wind is blowing, the escaping steam from an approaching steamer's whistle is often seen to indicate one or two blasts, when no sound is heard.

Steam often condenses in the steam pipe leading to the whistle. In an attempt to blow a signal, water and steam escape making no sound. If then the whistle-cord is relaxed and pulled again to sound a blast, it may appear from a distance like a two-blast signal, while only one is intended or really sounded.

RULE III. *If, when steam vessels are approaching each other, either vessel fails to understand the course or intention of the other, from any cause, the vessel so in doubt shall immediately signify the same by giving several short and rapid blasts, not less than four, of the steam whistle.*

This rule for inland waters has been amended by the Supervising Inspectors to read:

RULE I. *If, when steam vessels are approaching each other, either vessel fails to understand the course or intention of the other, from any cause, the vessel so in doubt shall immediately signify the same by giving several short and rapid blasts, not less than four, of the steam whistle, the* DANGER SIGNAL.

Whenever the danger signal is given, the engines of both steamers shall be stopped and backed until the headway of the steamers has been fully checked; nor shall the engines of either steamer be again started ahead until the steamers can safely pass each other, and the proper signals for passing have been given, answered, and understood.

RULE II. *Steam vessels are forbidden to use what has become technically known among pilots as "*CROSS SIGNALS,*" that is, answering one whistle with two, and answering two whistles with one. In all cases, and under all circumstances, a pilot receiving either of the whistle signals provided in the rules, which for any reason he deems injudicious to comply with, instead of answering it with a cross signal, shall at once sound the danger signal and observe the rule applying thereto. (Rule 1).*

Much controversy is held over these two rules; no others are so frequently violated. It is a good rule that makes it unlawful to disregard proper signals; nevertheless they cannot always be strictly followed. Many propeller boats will swing around across channel as soon as the engines are worked astern. This renders them without control by the helm. Other vessels approaching or following may be forced to check their way by stopping or backing, causing them similar difficulties.

In crowded waters where cross signals are frequently heard, the excuse can be made that they were intended for another vessel.

RULE VIII. *When steam vessels are running in the same direction, and the vessel which is astern shall desire to pass on the right or starboard hand of the vessel ahead, she shall give one short blast of the steam whistle, as a signal of such desire, and if the vessel ahead answers with one blast, she shall put her helm to port; or if she shall desire to pass on the left or port side of the vessel ahead, she shall give two short blasts of the steam whistle as a signal of such desire, and if the vessel ahead answers with two blasts, shall put her helm to starboard; or if the vessel ahead does not think it safe for the vessel astern to attempt to pass at that point, she shall immediately signify the same by giving several short and rapid blasts of the steam whistle, not less than four, and under no circumstances shall the vessel astern attempt to pass the*

In this situation two steamers are approaching each other at right angles or obliquely *without involving risk of collision*, the course and speed of both being such as would allow the steamer having the other on own starboard side to cross the bow of the other without interfering with the course and speed of the other. In this case the steamer having the other on own *starboard* side may cross ahead of the other, after giving the necessary signals, and receiving the assent of the other steamer.

vessel ahead until such time as they have reached a point where it can be safely done, when said vessel ahead shall signify her willingness by blowing the proper signals. The vessel ahead shall in no case attempt to cross the bow or crowd upon the course of the passing vessel.

The signal of one blast signifies a port helm and two blasts a starboard helm when given by an overtaking steamer. The answer is merely an assent to the overtaking steamer's adopting that course. This rule has been both abused and disregarded, especially by a steamer which may have an object in keeping ahead of another independent of the question of safety in passing. Oblique courses are steered across rivers or channels to prevent rival steamers from passing. Both steamers, in such a case, disobey the rule; one by making an attempt to pass without the proper signals, and the other by purposely crowding upon her course.

RULE IX. *The whistle signals provided in the rules under this article, for steam vessels meeting, passing, or overtaking, are never to be used except when steamers are in sight of each other, and the course and position of each can be determined in the daytime by a sight of the vessel itself or by night, by seeing its signal lights. In fog, mist, falling snow or heavy rainstorms, when vessels cannot see each other, fog signals only must be given.*

Exceptions have been taken to this rule, and steamers have frequently crept by each other during dense fog, without mishap, by giving passing signals. However, the law could not sanction any such procedure and those who practice it must do so at their own risk.

TWO STEAM VESSELS CROSSING

ART. 19. *When two steam vessels are crossing, so as to involve risk of collision, the vessel which has the other on her own starboard side shall keep out of the way of the other.*

We recognize the law of port helm here again. The vessel having the other on her own starboard side must watch the approaching vessel, and if any doubt exists about being able to pass ahead of her in perfect safety the wheel should be ported to swing off and pass under her stern.

If dangerously close, and too late to swing off under the other vessel's stern, starboard the wheel to pass clear ahead of her. If necessary, slow, stop or back the engines.

STEAM VESSEL SHALL KEEP OUT OF THE WAY OF SAILING VESSEL

ART. 20. *When a steam vessel and a sailing vessel are proceeding in such directions as to involve risk of collision, the steam vessel shall keep out of the way of the sailing vessel.*

COURSE AND SPEED

ART. 21. *Where, by any of these rules, one of the two vessels is to keep out of the way, the other shall keep her course and speed.*

As sailing vessels depend altogether upon the direction and force of the wind to move them, it is properly the duty of steam vessels to keep out of their way. Nevertheless, due regard should be shown to the difficulties which may beset either vessel. Circumstances are sometimes such that it is nearly impossible for a steamer to clear herself, while the sailing vessel can sheer off easily.

Tacking ship and altering courses in the way of steamers is extremely dangerous and to be avoided whenever possible.

CROSSING AHEAD

ART. 22. *Every vessel which is directed by these rules to keep out of the way of another vessel shall, if the circumstances of the case admit, avoid crossing ahead of the other.*

STEAM VESSEL SHALL SLACKEN SPEED OR STOP

ART. 23. *Every steam vessel which is directed by these rules to keep out of the way of another vessel shall, on approaching her, if necessary, slacken her speed or stop or reverse.*

These rules are precautionary and should be followed closely whenever necessity arises.

OVERTAKING VESSELS

ART. 24. *Notwithstanding anything contained in these rules every vessel, overtaking any other, shall keep out of the way of the overtaken vessel.*

Every vessel coming up with another vessel from any direction more than two points abaft her beam, that is, in such a position, with reference to the vessel which she is overtaking that at night she would be unable to see either of that vessel's side lights, shall be deemed to be an overtaking vessel; and no subsequent alteration of the bearing between the two vessels shall make the overtaking vessel a crossing vessel within the meaning of these rules, or relieve her of the duty of keeping clear of the overtaken vessel until she is finally past and clear.

As by day the overtaking vessel cannot always know with certainty whether she is forward of or abaft this direction from the other vessel she should, if in doubt, assume that she is an overtaking vessel and keep out of the way.

Fast sailing vessels, when conditions favor them, may overtake steam vessels of low power. Overtaking vessels must keep out of the way of those overtaken in this case, as with other vessels.

When one vessel passes another and both are steering nearly the same course, the former is, without question by either vessel, regarded as an overtaking vessel. When overtaking at a large angle and passing another on her own port side, she is likely to consider herself a crossing vessel; and, as she shows her red light to the other, will claim the right of way. The other vessel, confident the first is overtaking her, holds her course and speed as the law directs. Under such circumstances, it frequently happens that two vessels approach each other dangerously close, before either or both alter their courses.

In overtaking a vessel on the port quarter, the case is a simple one; as the faster vessel, showing her green light to the other, whether overtaking or crossing, would be obliged to keep clear of the other.

NARROW CHANNELS

ART. 25. *In narrow channels every steam vessel shall, when it is safe and practicable, keep to that side of the fairway or mid-channel which lies on the starboard side of such vessel.*

RIGHT OF WAY OF FISHING VESSELS

ART. 26. *Sailing vessels under way shall keep out of the way of sailing vessels or boats fishing with nets, or lines, or trawls. This rule shall not give to any vessel or boat engaged in fishing the right of obstructing a fairway used by vessels other than fishing vessels or boats.*

In Article 25 we have again the law of port helm, keeping to the right hand, to be used when safe and practicable.

GENERAL PRUDENTIAL RULE

ART. 27. *In obeying and construing these rules due regard shall be had to all dangers of navigation and collision, and to any special circumstances which may render a departure from the above rules necessary in order to avoid immediate danger.*

No fixed rules can be made to regulate every signal and movement when danger is imminent. Collisions must be avoided by whatever means possible when the rules are not adequate or effective. Safety will depend upon good judgment and quick action by both vessels. When a collision is impending, endeavor to swing vessels so as to strike a glancing rather than a head on blow. Above all things, strive not to present the broadside to the bow of the other vessel.

One should be extremely cautious how he departs from the rules, yet there are times when it is not only permissible but imperative to overstep all rules.

ART. 28. *When vessels are in sight of one another a steam vessel under way whose engines are going at full speed astern shall indicate that fact by three short blasts on the whistle.*

PRECAUTION

ART. 29. *Nothing in these rules shall exonerate any vessel, or the owner or master or crew thereof, from the consequences of any neglect to carry lights or signals, or of any neglect to keep a proper lookout, or of the neglect of any precaution which may be required by the ordinary practice of seamen, or by the special circumstances of the case.*

A steamer's masthead light or other white light forward is easily seen at a distance. If range lights are used the angle of the steamer's course can be judged by them without seeing the

sidelights. Sailing vessels should keep a good watch that their sidelights are kept burning. They should keep a torch or flare-up light ever ready to exhibit in case their sidelights are not noticed, and to show over the stern to overtaking vessels.

A skillful helmsman at the wheel and a lookout forward are requisite even on motor boats and especially in crowded waters. Entering port or when a fog shuts in, the engineers must be notified to "stand by."

A lead and line for sounding are often needed quickly. Oil lights must be provided in case the electric lights are extinguished from any cause. An anchor should be ready for use, with men stationed to handle it promptly when ordered.

STEAM VESSELS—RANGE LIGHTS

(e) A seagoing steam vessel, when under way, may carry an additional white light similar in construction to the light mentioned in subdivision (a). These two lights shall be so placed in line with the keel that one shall be at least fifteen feet higher than the other, and in such a position with reference to each other that the lower light shall be forward of the upper one. The vertical distance between these lights shall be less than the horizontal distance.

(f) All steam vessels (except seagoing vessels and ferryboats), shall carry in addition to green and red lights required by article two (b), (c), and screens as required by article two (d), a central range of two white lights; the after light being carried at an elevation at least fifteen feet above the light at the head of the vessel. The headlight shall be so constructed as to show an unbroken light through twenty points of the compass, namely, from right ahead to two points abaft the beam on either side of the vessel, and the after light so as to show all around the horizon.

Here it is made optional with sea-going steam vessels whether they carry a range light aft or not. If carried, it must be a white light of similar construction to the forward masthead light. According to these rules there is no fixed light provided to show astern.

All steam vessels *except* sea-going vessels must carry range lights, the after light to show all around the horizon. When the range lights of a steamer are seen exactly in line, they may appear like the lights of a towing steamer when at a distance. When opened out, and the light aft is at a proper height, they are a good guide to show at what angle the vessel is approaching before the sidelights can be seen. It sometimes happens that the after range light is so near on a level with the forward light that one cannot be distinguished from the other; and their usefulness is consequently destroyed. However, two lights are better than one, for if one becomes dim the other may be seen.

LIGHTS FOR AN OVERTAKEN VESSEL

ART. 10. *A vessel which is being overtaken by another, except a steam vessel with an after range light showing all around the horizon, shall show from her stern to such last-mentioned vessel a white light or a flare-up light.*

This rule is made for vessels not carrying an after range light visible all around the horizon. With a range light aft showing all around the horizon, another white light shown at the stern below would be confusing, as it would appear like the range lights of a vessel coming head on.

By the International Rules, the range light aft, which may be carried, cannot be seen over two points abaft the beam on either side. A provision is made in the rules whereby a fixed light may be carried astern, but it is not compulsory. It is as follows:

LIGHTS FOR AN OVERTAKEN VESSEL

ART. 10. *A vessel which is being overtaken by another shall show from her stern to such last-mentioned vessel a white light or a flare-up light. The white light required to be shown by this article may be fixed and carried in a lantern, but in such case the lantern shall be so constructed, fitted, and screened that it shall throw an unbroken light over an arc of the horizon of twelve points of the compass, namely, for six points from right aft on each side of the vessel, so as to be visible at a distance of at least one mile. Such light shall be carried as nearly as practicable on the same level as the side lights.*

INLAND RULES

STEAM VESSEL UNDER WAY (IN A FOG)

(a) A steam vessel under way shall sound, at intervals of not more than one minute, a prolonged blast.

INTERNATIONAL RULES

STEAM VESSEL UNDER WAY (IN A FOG)

(a) A steam vessel having way upon her shall sound, at intervals of not more than two minutes, a prolonged blast.

(b) A steam vessel under way, but stopped, and having no way upon her, shall sound, at intervals of not more than two minutes, two prolonged blasts, with an interval of about one second between.

A difference is noticed here in the interval allowed between signals sounded in a fog for inland waters and at sea. Two minutes is too long an interval for fast moving steamers.

The signal for a vessel stopped is not provided in the Inland Rules. The International Rule is very useful for vessels arriving near the mouth of rivers and harbors, especially when picking up pilots or discharging them. Again, when two vessels meet dangerously close together, if one is known to be stopped the other can feel her way safely past her.

A few incidents will be mentioned to illustrate some of the rules discussed. Two sailing vessels once collided while sailing close-hauled on opposite tacks, sinking the vessel on the starboard tack, which, of course, had the right way over the other. At the investigation afterwards held, the master of the vessel at fault was asked on which tack he was at the time of the collision. He replied in good faith: "I was on the gaining tack, sir." Beating his schooner into port, making a short leg and a long one, he simply knew that he was on the gaining tack, i.e., the long leg!

Some years ago one of the large Sound steamers leaving New York was approaching Hell Gate bound eastward, and as she was ready to turn around Hallett's Point a small schooner tacked and stood with her broadside directly across the steamer's bow. The captain quietly observed, "It is either the schooner or the shore, I guess I will take the schooner." The schooner, which was of comparatively small value, was sunk, the crew soon rescued, and the captain of the great steamer with her load of passengers was fully justified in his prompt decision.

When running in a dense fog, the best time and courses can be made by going full speed, yet it is in violation of the rules; and, in case of accident, the offender must bear the consequences. Some insist on anchoring, if they can get bottom, as soon as a fog shuts in, but this does not ensure safety. It is not right to anchor in a main ship channel, or narrow pasage where there is constant traffic. A vessel under way often has the advantage by being able to move from a place of danger.

Above all, when in the confusion of traffic around our busiest seaports, be prompt in giving and answering signals, keep a lookout for ferryboats leaving their slips and especially for large steamers backing out of their docks.

The following familiar verses are easily committed to memory and a great aid in keeping the rules in mind:

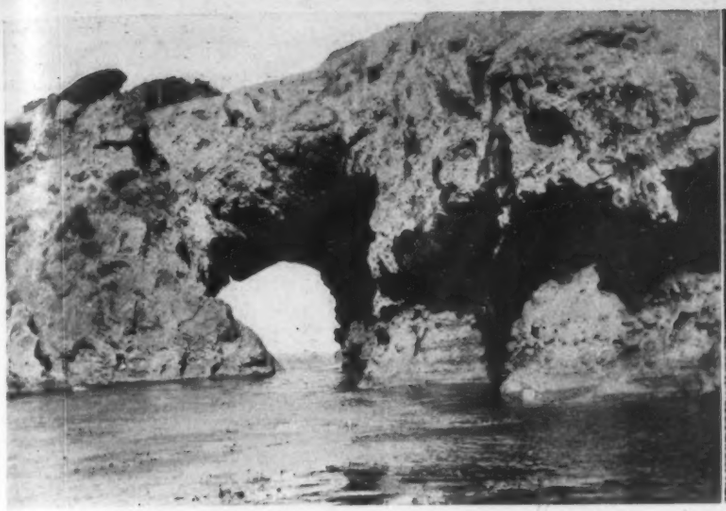
"Meeting steamers do not dread
When you see three lights ahead,
Port your helm and show your red.

Green to green, or red to red,
Perfect safety, go ahead.

If to starboard red appear
'Tis your duty to keep clear;
To act as judgment says is proper,
Port, or starboard, back or stop her.
But when upon your port is seen
A steamer's starboard light of green,
There's not so much for you to do,
For green to port keeps clear of you.

Both in safety and in doubt,
Always keep a good lookout;
In danger with no room to turn,
Ease her, stop her, go astern."

[EDITOR'S NOTE.—We shall be very glad to send to any reader of YACHTING who may have difficulty in procuring these rules of the road a copy of the Pilot Rules upon receipt of request and 5 cents in stamps to cover mailing cost. State the waters sailed on, as the rules vary for different sections; such as Inland Waters of the Atlantic and Pacific coasts, Great Lakes and tributary streams, etc.]



NATURAL ROCK BRIDGE ON SANTA CRUZ ISLAND

PLATT'S HARBOR, SANTA CRUZ ISLAND

Southward Along the Pacific Coast

Thirteen Hundred Miles in the Sloop Yacht Yankee on a Cruise to the Mexican Line. A Gale off Point Conception

By CHARLES E. MILLER

A WET, clinging fog enshrouded the Bay of San Francisco. It drove before the lash of a brisk nor'wester and rolled over the water in great vaporous clouds, condensing on spar and rigging in tiny beads that mingled and splashed on deck in dreary monotone.

There were three of us in the cozy cabin of the Yankee, smoking reflective pipes and listening to the slow pitter-patter overhead; Ross Wright, better known as "the strong man of the fleet," Charles Albrecht, as clever a Corinthian as ever shipped on a racing yacht, and the writer, who was just owner and captain. A small crew, perhaps, to handle such a craft as Yankee—53 feet overall, 37 feet 4 inches on the water line, 15 feet beam, and carrying 1,900 square feet of sail—but we knew our good old ship and felt we could trust ourselves to her in almost any weather, for a stauncher and more seaworthy boat was never built. At Santa Barbara Wright had to leave us and Dr. C. H. A. Davis joined the ship in his stead.

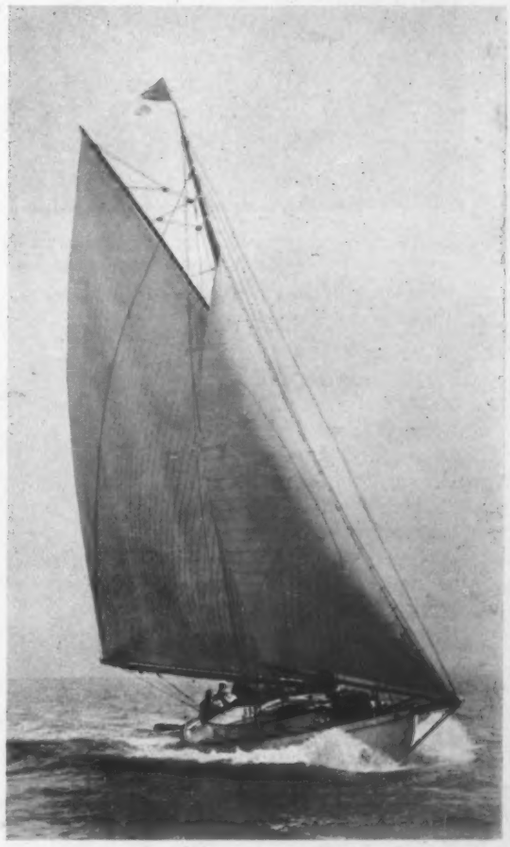
The mate presently arose, stuck his head out of the companion and cast a glance around, then pulled back quickly into the warm comfort of his bunk.

"Thick as ever," he grumbled, wiping the moisture from his face.

Ross laughed. "And the worst of it is, old man, that you must forget your Sybaritic tendencies in a few minutes and pretend to be a nice, willing, hard-working little squarehead. Poor chap, it does seem cruel."

Charlie looked up at the ship's clock and sighed. "I guess you are right, we'd better be putting the rags on her. They'll be firing the preparatory in less than half an hour, and we don't want to be late. Where are the oilers stowed?"

I got them out and we proceeded with feigned unconcern to slip into the sticky garments, but beneath the studied pose a keen anxiety to get under way was stirring. For months we had talked and planned of this long cruise on which we were starting, and at last anticipation was to become reality. What mattered that a little mist would speed us on our journey? We could already see the blue sky and bright sunshine of the morrow, and hear the merry song of the wind chanting through the rigging.



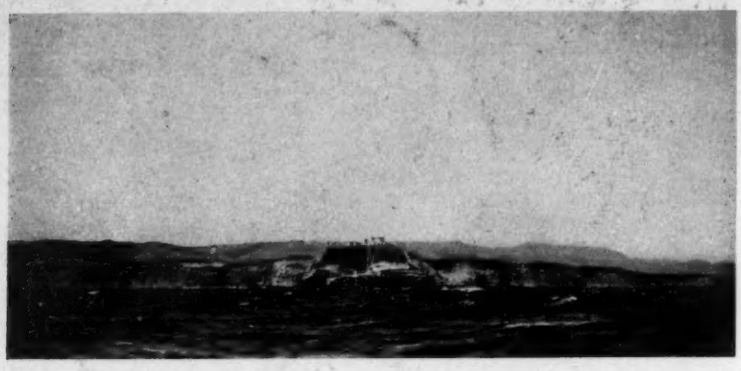
THE YANKEE WAS A 53-FOOT OVERALL SLOOP

Sixteen yachts dropped their moorings at Harbor View around ten o'clock that night, and gliding ghostlike through the quiet waters made for the committee boat, which was to start the fleet of the Corinthian Yacht Club, of San Francisco, on the fourth annual Ocean Race to Santa Cruz, 70 miles down the coast.

It was thrilling work, that manœuvring for position at the line. Curled up in the cockpit, with ear strained and eye trying to pierce the pall around us, we thrashed back and forth through the fast moving craft, watching with tingling nerves for the great nebulous phantoms that would loom up unexpectedly out of the darkness, dangerously near, then swerve suddenly, and slip silently by.

The signal to go was never more welcome. Away we shot, rail down and canvas bellying hard, starting at a good 7-knot clip on the long run before us. As we approached the Golden Gate the wind freshened and churned up the water into short, spray-topped waves which Yankee's bow cut like a knife, throwing aloft great sheets of scud that fell back on us in drenching rain.

Once outside, we laid a course that would carry us clear of Pillar Point, eased sheets, and with a long swell on our quarter began to reel off the miles. It was wonderful sailing from then on.



PT. CONCEPTION AT THE NORTHERN ENTRANCE TO SANTA BARBARA CHANNEL

Daylight found the yachts well scattered, though most of them could be picked up with the glasses. The schooner Marion held the lead, but we came next, and as the schooners and sloops were in separate divisions this fact furnished cause for rejoicing.

After sunrise the wind moderated, but it lasted until the finish; and Marion crossed the line at 10.10.08, a winner in her class, having completed the 70-mile course in 11 hours 40 minutes 8 seconds. Yankee, close on her heels, passed the committee 1 minute 40 seconds later and took first prize among the sloops.

The Santa Cruz yachtsmen had prepared a full week of festivities for us and our visit was made most enjoyable. Racing was, of course, part of the program and the two events scheduled proved eminently successful. The first, over a 15-mile course, was sailed in light, flukey weather, and luck broke against us. After leading the fleet to within 100 yards of the finish we ran into a flat spot and lay bobbing with flapping sails, raging inwardly, while more fortunate skippers caught a streak of air offshore and crawled in ahead of us.

But we had our weather later, in the ten-mile race. A stiff breeze and lumpy water gave Yankee a chance to prove her mettle. Taking the bit in her teeth she simply romped away from all competitors and led home her nearest rival, the Harpoon, by nearly eight minutes.

A yachtsman's dinner on August 13th concluded the week's fun. Captains and crews attended in their sea-going clothes, the absence of formality engendering a spirit of friendliness and good fellowship that no ceremonious banquet could have created.

On the morrow Yankee set sail with the fleet when it started back toward 'Frisco, but parted company with it a few miles out, and with Sweetheart alongside, headed southward.

Light winds prevailed all day and all night, but at dawn the breeze began to stiffen, and gradually increased in strength until by 8 o'clock in the morning we were running before a howling nor'wester that piled up huge seas astern, and made Yankee plunge forward, yawing so heavily that it was quite impossible to hold anything like a straight course.

Off Point Conception conditions became very bad. This spot has won for itself the title of "the Hatteras of the Pacific Coast," and we found the name well earned. We were soon racing before half a gale of wind. The seas handled us so roughly that for a while we feared they would loosen every timber in Yankee's good old hull, but the promontory was eventually weathered, and we won the lee of the land without mishap. Then, in less than an hour, Yankee was floundering in a dead calm, without steerage way. But lazy catspaws found their way to us later, and in short, slow stretches carried us toward Santa Barbara.

Here we found the anchorage unusually crowded and inquired the reason of a passing fisherman.

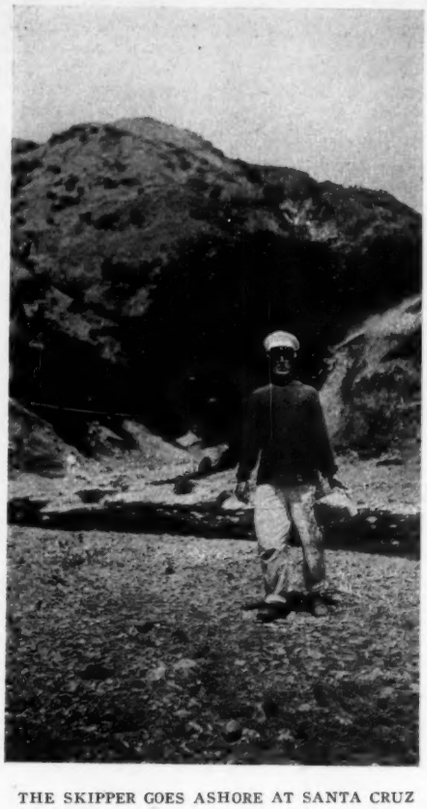
"Race week," he informed us. "Championship of Santa Barbara and South Coast Yacht Club fleets."

The Strong Man perked up.

"Our mutton, I presume," he commented, turning toward me.

"You assume perfectly," I corrected, "provided the committee will permit our entry, of which I hold no doubt. I'll back Yankee against any of them."

"Don't get reckless," cautioned the pessimistic Charles, "these southern racing machines are wizards in light weather and carry all kinds of kites. The chances are ten to one in favor of our suffering from sweet-scented zephyrs, too. Take my word for it; I know the place."



THE SKIPPER GOES ASHORE AT SANTA CRUZ

And he proved a true prophet. We had no difficulty in entering the races, and participated in three, but for breeze we whistled in vain; and our lofty-rigged rivals showed us their heels in maddening and convincing style.

On our second day at Santa Barbara we met the owner of Winsome, a saucy little yawl, the latest addition to the southern fleet; and as he spoke of his intention to visit the Island of Santa Cruz, where we were also bound, I suggested our taking a cruise together.

"Nothing will suit me better," he said promptly, "and we'll make a sporting proposition of it by racing over, if you like." To which I gladly acquiesced.

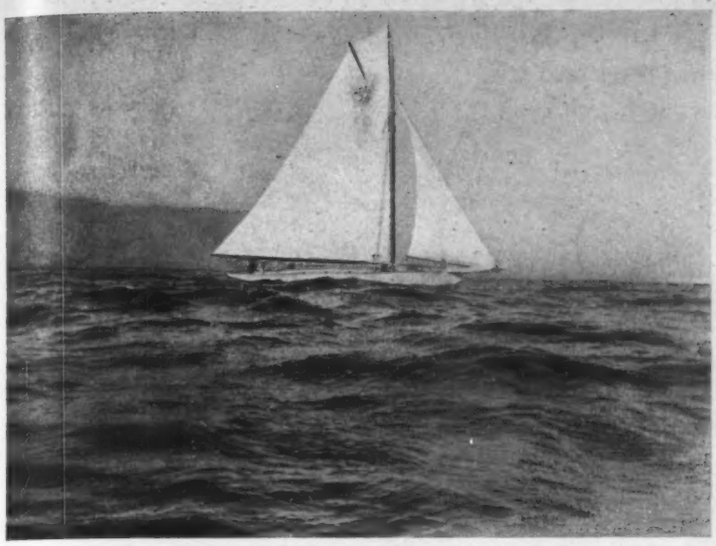
When we left the hospitable harbor, there was barely enough wind to fill the sails, and Winsome began to outfoot us from the start, which elicited sarcastic remarks concerning tubs that couldn't get out of their own way.

"Stop your croaking," I said, "and wait until we get clear of the headlands. Then you'll see happenings. It's a long race."

We did, in fact, strike a real breeze on entering the channel and then things changed in a hurry. Both boats had their rails well under, and Yankee soon overhauled the yawl, finishing the 21-mile run in the lead.

Santa Cruz is a dream of an island, and for a yachtsman fond of cruising it has no

JAPANESE WORKMEN ON SANTA CRUZ ISLAND MAKING POTS FOR CATCHING CRAWFISH



WORKING THROUGH SANTA BARBARA CHANNEL

THE YAWL FOUND A STRONG BREEZE IN THE CHANNEL

peer on earth. Twenty-one miles in length, and with a coast line of 60 miles sprinkled plentifully with pretty little harbors offering safe shelter, good holding ground and beautiful scenery, it is a veritable paradise. The water is so clear that the anchor can be seen at a depth of 8 to 10 fathoms, and it abounds in fish of many kinds—abalones, mussels and crawfish.

The abalone, or ear-shell for those who may not have heard of this useful mollusk of the Pacific, is a shell-fish that gives to the coast towns and villages a handsome revenue. At Santa Cruz the industry is controlled by the Japanese, who employ divers to collect the abalones. These divers are lowered into the water and scrape the monovalves off the bottom with queer looking iron bars shaped for the purpose; they are then dumped into a basket and hauled aboard. Later the fleshy part is taken out of the shell, boiled in brine, and laid out in the sun to dry. Thus cured it is packed and shipped, the bulk being exported to China. The shell is disposed of separately. It is used for inlaying wood and lacquer work.

When the abalone season is over the fishermen turn their attention to the crawfish, or spiny lobster, a delicately flavored variety of the popular shellfish, which finds ready sale on the California markets.

While cruising from harbor to harbor we made many trips ashore. A short walk from the beach takes one into picturesque rolling country, green and wooded, that is a veritable Eden. Most of the time, however, the clear blue sky and warm sunshine induced us to roam around in the freedom of our bathing suits, and many a delightful swim we enjoyed in the clear water, gathering fat and juicy mussels, often five and six inches in length, which, fresh from the sea, made delicious eating.

We had heard that there was excellent rock bass fishing in the neighborhood, so took our tackle with us on the sight-seeing expeditions. We had no reason to regret it. The sport was of the best. Indeed, the rock bass is as game a fish as I have ever landed with rod and reel; quite as resourceful a fighter as the fresh water black bass and equally palatable. We used the same lures that one does for black bass.

An amusing experience that we had more than once during our stay was to be taken for government inspectors by the fishermen. The consternation which they displayed on beholding us did not speak over well for the manner in which they observed the law; and it was very funny, if somewhat embarrassing, to have them come alongside and try to propitiate us with gifts of fish and abalones. These donations they insistingly thrust upon us even after we had taken pains to explain that we were only visiting yachtsmen. It was quite evident that they doubted our repeated assertions and they probably thought we were denying our identity in order better to accomplish our purpose.

But time pressed and southern seas beckoned, so we finally had to bid farewell to the island. We weighed anchor with regret and slipping past Anacapa, a fantastic mass of rock showing dark against the clear sky, we set sail for Santa Catalina.

It was an all day run and we passed the time trolling. Several very large fish were hooked, but they proved to be mostly albicores and bonitas and these we refrained from gaffing; but returned to the sea. Night closed in before we had made port, but the lights of Avalon served us as a beacon and by 10 o'clock we had dropped anchor and were ready to take to our bunks.

A week sped by all too soon at Catalina, for the fishing was excellent and the life ashore very pleasant. However, we had our schedule to follow, so the eighth day saw us again alone on the ocean, bowling merrily toward San Diego, listing to the drive of a spanking westerly. Night came along, bright and starry, and with the falling of darkness the water around us took on a phosphorescent hue. Arrow-like streaks of light shot out from the bow with every plunge, and behind us a luminous trail of silver followed like the tail of a comet. In the early hours of morning Yankee ran into many schools of flying fish and one bold little fellow sprang bravely toward us, landed on deck, and lay helplessly flapping in the scupper.

We had seen kelp aplenty during the trip, but never in such quantities as we found off Point Loma. Here it runs out about five miles from shore in a bed two or three miles wide. This curious seaweed has a long, tough, slender stem, which ascends from submarine rocks and forms a tangled mass of vegetation that serves as a natural breakwater on the exposed coasts. We went through the Point Loma bed, instead of circling it, for the hard little stems act like a brush on the bottom of a boat and scrape it

(Continued on page 448)

YANKEE, WITH THE HOOK DOWN, AT SAN DIEGO. CLUBHOUSE OF THE SAN DIEGO YACHT CLUB ON THE LEFT

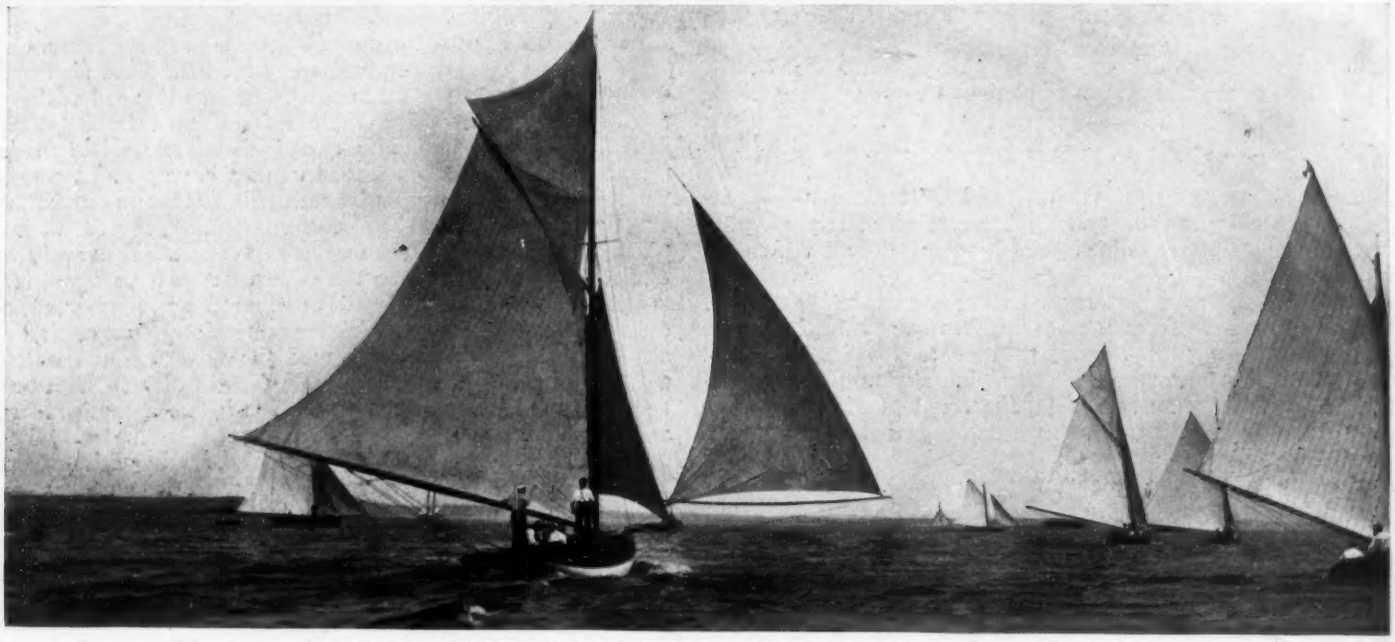
The Last Thirty Years in Yachting

The Great Change in Yacht Design and Rig of the Last Thirty Years Is Strikingly Shown in These Old Photographs.

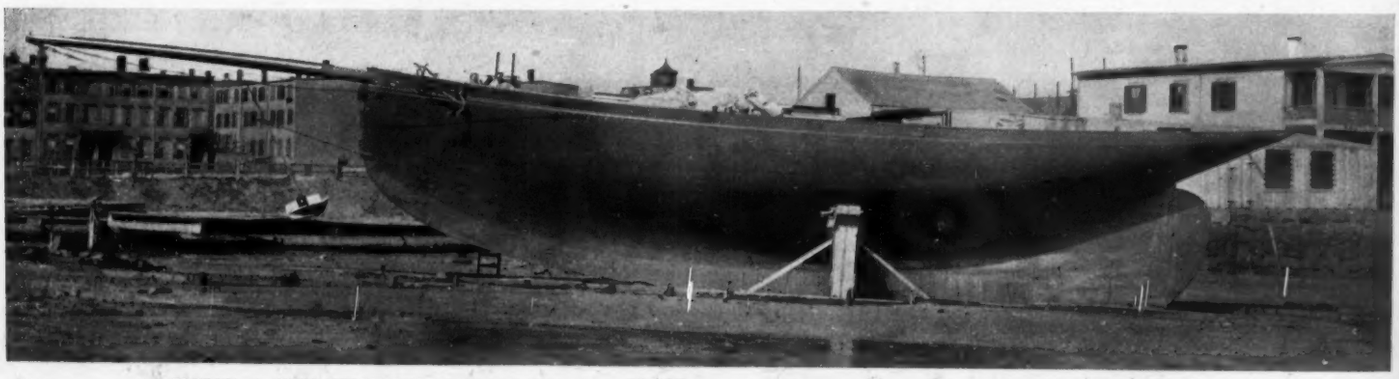
The Period from 1880 to 1885.

PHOTOGRAPHS BY N. L. STEBBINS AND OTHERS

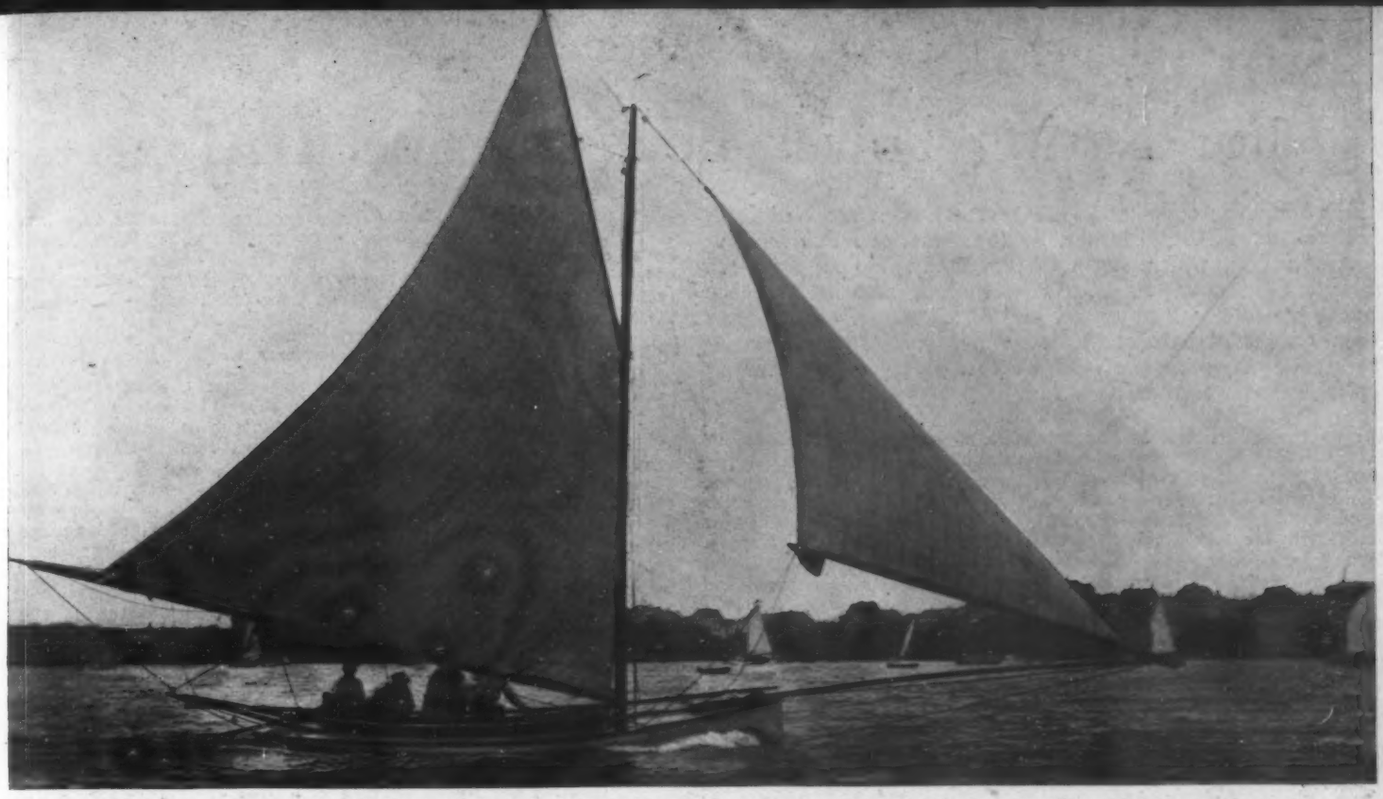
WAITING FOR THE GUN AT THE HULL YACHT CLUB REGATTA, 1884. NOTICE HOW DIFFERENT RIGS RACED IN THE SAME CLASS.



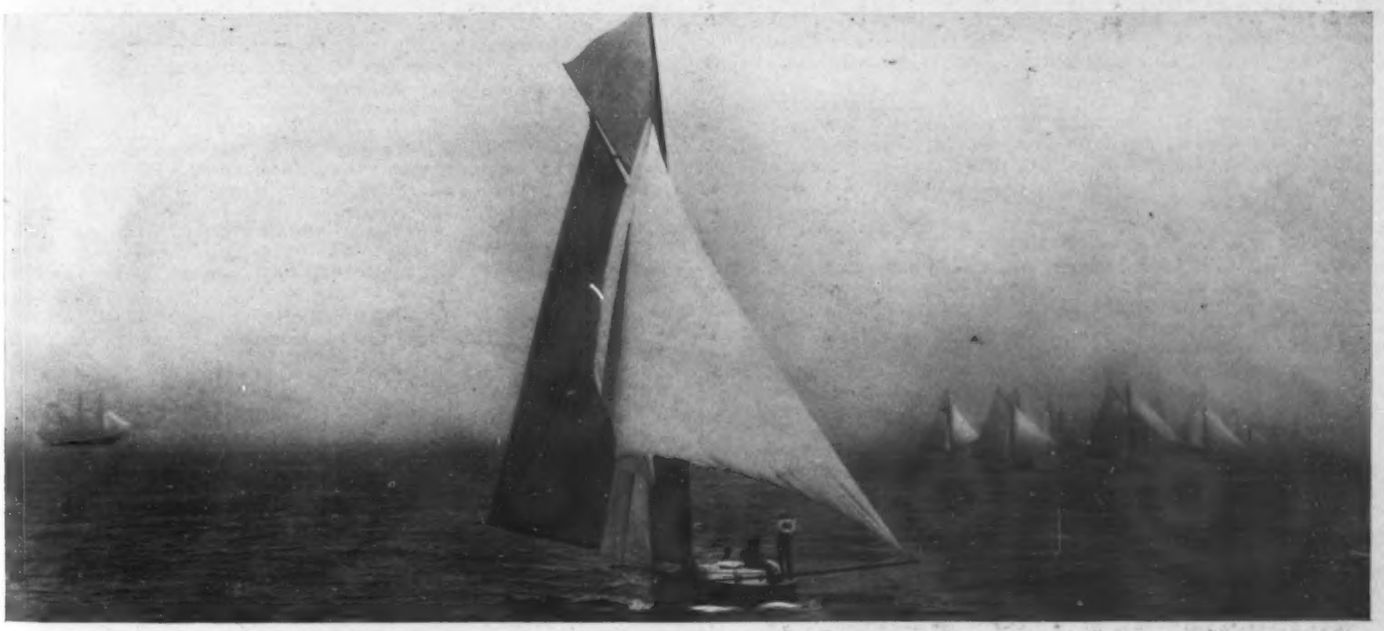
THE J. S. POYEN, JR., A FAMOUS SLOOP OF 1883 THAT WON MANY PRIZES.



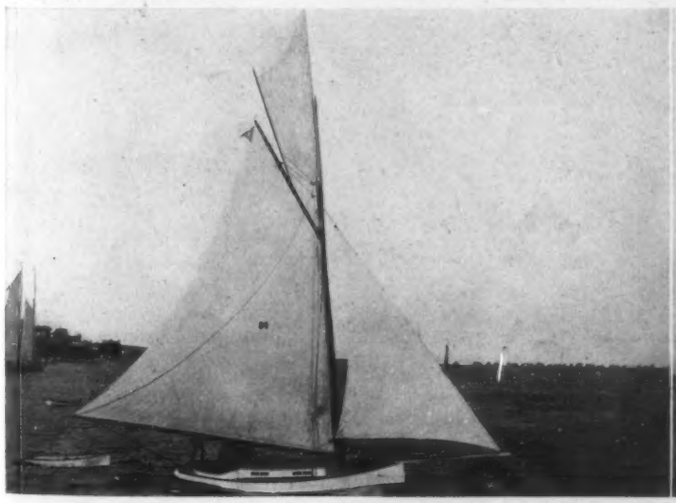
HURON, A WELL-KNOWN KEEL SLOOP, BUILT IN 1883, SHOWS AS SWEET LINES AS ANY OF THE PRESENT BOATS.



CRUISER, A SLOOP THAT WENT AROUND THE CAPE FROM LONG ISLAND SOUND IN 1884 AND "CLEANED UP" ON MASSACHUSETTS BAY.



BLACK CLOUD, A FAMOUS RACER OF 1884, LEADING THE FLEET HOME. SPINNAKERS WERE NOT AS EFFICIENT A SAIL IN THOSE DAYS.



SEABIRD, A 25-FOOTER OF 1883, WITH ALL THE RIGGING OF A SHIP.

CLYTIE, ONE OF THE FULL BODIED, ABLE SLOOPS OF 1884.

For Rating Power Boats by Speed Alone

THE following open letter has recently been received from President H. T. Koerner, of the American Power Boat Association, which suggests practically dumping the old rating rule of the A. P. B. A. overboard, and in its place classifying speed boats by speed and speed alone. While this has been suggested before, the letter has such strong bearing on the recent action of the A. P. B. A. in regard to defining hydroplanes that we print it in full.

On my return to the United States I find a curious situation developing with considerable rapidity as related to motor boat racing. That the premonitory signs all pointed to such a development, no one conversant with the activities of the sport can well deny. That some of the remedies suggested by legerdemain radicals, if put into operation, would result in a condition far worse than the real ailment, is patent on its face.

There is no doubt of the need of meeting the changed conditions brought about by the phenomenal development of the modern boat for racing. The advent of the so-called hydroplane has precipitated the whole question into an active and immediate call for decisive action. Hitherto high-speed boats were relegated to classes according to length, irrespective of the power of the engines, and usually raced in scratch races, the first boat in being the winner. With the advent of the hydroplane, this simple and satisfactory method of racing has resolved itself into a farce. A 20-foot hydroplane to-day can equal the speed, and, in fact, has proven the superior of boats 26, 32 and even 40 feet long, and has left the displacement boat in a position where it is impossible to compete at all.

The old rules of the American Power Boat Association have proved entirely inadequate to cope with the new situation and are, of course, obsolete. The Western method of racing by classes based on length, irrespective of power, will also be completely inoperative through the rapid development of the hydroplane. There is no rule, no method, nothing tangible in view to properly place the hydroplane of varying size and horsepower, but of equal speed. No interminable string of figures, no mathematical calculations and nothing the human mind is capable of formulating at present seems to cover the ground or fit the case. The definition of "What is a Hydroplane" as submitted by a special committee, consisting of W. H. Fauber, Clinton H. Crane, Henry J. Gielow, R. B. Clark, George F. Crouch, M. M. Whitaker and Irwin Chase, who were appointed at the annual meeting of the A. P. B. A. follows:

"A hydroplane is defined as a racing boat, whose propeller acts in or against the water, which has one or more of the following characteristics: (a) one or more breaks in the longitudinal continuity of the immersed surface, or one or more superimposed lifting surfaces; (b) an immersed area of transom exceeding 33% of the immersed midship section, taken at 50% of the l.w.l.; (c) a rating under 1912 A. P. B. A. rules exceeding 16 times the square root of the l.w.l. length. Immersed areas shall be actual areas, taken with the boat at rest and the crew aboard in their racing positions. If, by virtue of any peculiar form of stern it is impossible to measure the immersed area of the transom, the maximum of submerged width at any point within 15% of the overall length from the stern shall be multiplied by the maximum draft at any point within 15% of the overall length of the stern, and the product shall be taken as the area of the transom."

The report clearly indicates the difficulties which clubs will have in measuring the boats belonging to members. One can easily imagine the correctness with which hydroplanes in the North, South, East and West will be "measured." Also the storm of protests that will result when the hydroplanes from various sections meet at a common center of racing! The guarded denunciation of the old A. P. B. A. rules will be as a summer zephyr compared with the outbursts that will certainly ensue—and for what? To try by theory what can be demonstrated by fact. To endeavor to fix arbitrarily that which can be demonstrated by the simple process of trial!

SPEED ALONE AS A BASIS OF COMPARISON, THE LOGICAL OUTCOME.

It is farthest from my intention to detract from the work done by the expert and efficient committee, many of whom are my personal friends, but candor compels a protest against the scientific result achieved in defining a hydroplane, purely from the standpoint of practical operation. The hydroplane, like the horse, should have its speed class. A 15-foot boat of this description, capable of making 30 miles, belongs in the 30-mile class. A 30-foot hydroplane, capable of making 30 miles, belongs in the same class. A 40-foot boat of similar construction, of 30 miles speed, likewise belongs in the 30-mile class. These boats should race together whether they are square, round, or triangular, whether they have one or more planes, superimposed or superabundant. In what other class does a 30-mile boat belong if not in the 30-mile class? The Percheron horse, 2:10, has no advantage over the little, wiry mustang, 2:10! His relatively greater muscular power is compensated by his proportionately heavier bulk.

The argument against the speed classes generally resolves itself into the ever-present "human equation," namely, jockeying of man in operating the craft. If motor boat men can invent any tricks or give any points that have not been tried in horseracing, they ought to be unhesitatingly placed into the niche reserved for the Eighth Wonder of the World! With the advent of new principles applied to boat construction let us simplify, not augment, the conditions that have been found intolerable. Let the old rules of the A. P. B. A. stand in the classes where they have been found especially valuable, as in the cruiser classes, but let us steer as far away as possible from the mathematical shoals that have wrecked many a friendship and many a disposition in the past.

The American Power Boat Association can well afford to take the lead in this advanced and attractive program. It simply must take the initiative in establishing a National Board of Control to whom shall be referred all ultimate questions of racing, protests and records. It must also definitely settle the status of the professional, reconstruct its Constitution and by-laws and revise its entire rules for racing to meet the changed conditions that are so obviously in need of it. It is a foregone conclusion that these observations will be received with much opposition, and that they will be subjected to much criticism, yet the writer feels that his justification lies in the fact, so apparent on all sides, that the time has come for a radical reform in the methods operating and which must be reformed along lines of simplicity and simplicity alone.

(Signed) H. T. KOERNER, President, A. P. B. A.

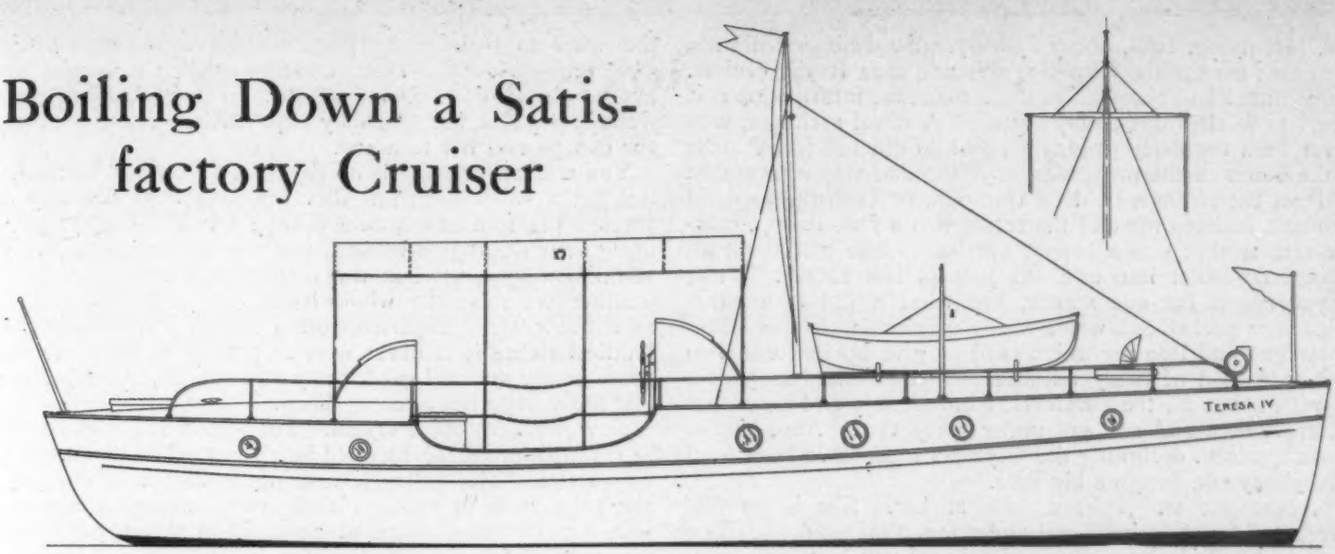
LET US HAVE YOUR OPINION OF IT

This matter is of such importance to power boat racing that we invite comment on it from our readers. Tell us what you think of it, where it may fail or what changes are necessary to make it a success. The best of these answers we will publish in the next issue of YACHTING, and will pay for them at our regular space rates. Read the above suggestions very carefully, get your "think machine" working and give us some good, intelligent letters on the subject. Address Editor, YACHTING, 141 West Thirty-sixth Street, New York.

Courtesy of "The Yachtsman"

A new Wolseley Hydroplane built in England for use in Canada. She is 26 ft. long by 4 ft. 6 in. beam, the hull three skin mahogany construction, sewn together on the Saunder's system. The hull is of the multiplane type fitted with a Wolseley 60-H.P. V-type motor, giving a speed of 31 knots.

Boiling Down a Satisfactory Cruiser



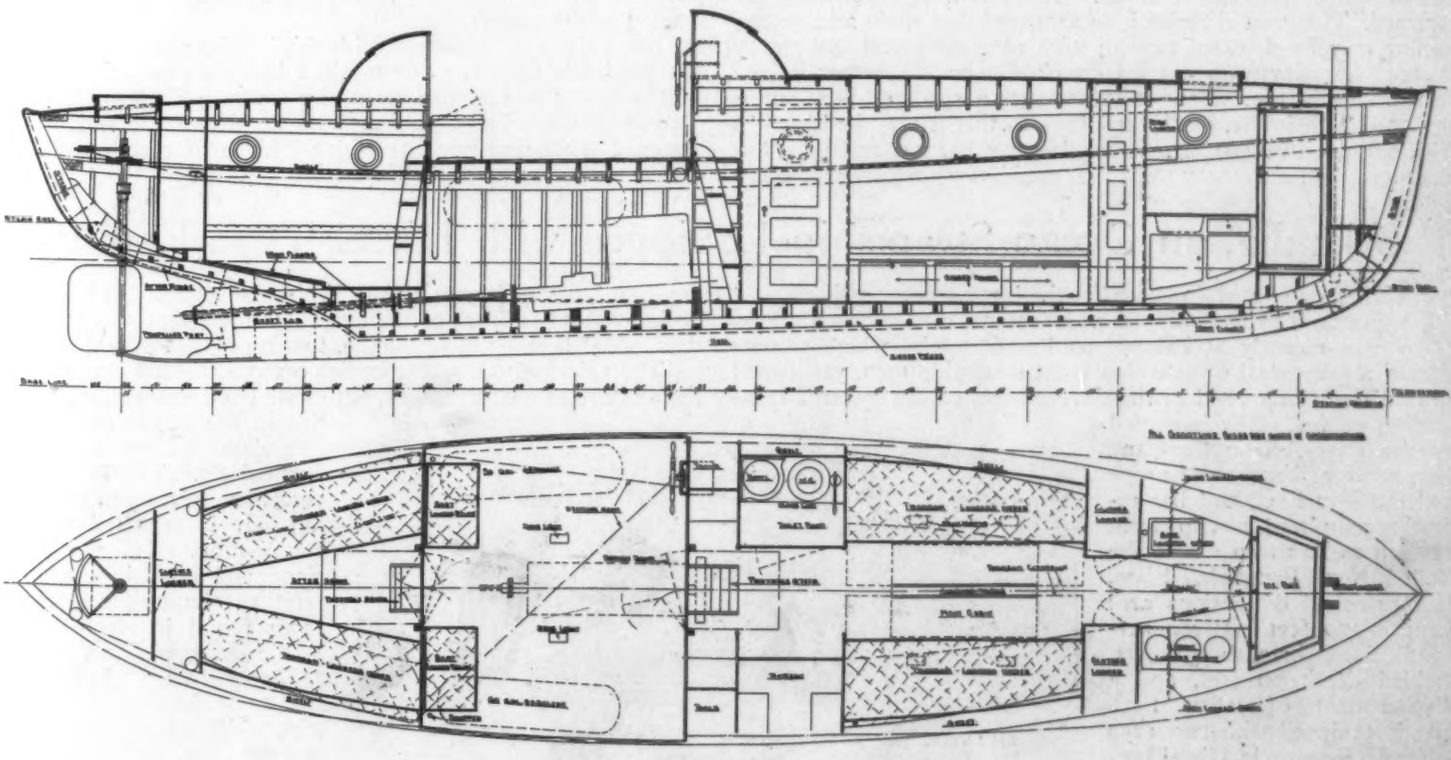
How the Accommodations and Conveniences of a 45-footer were Obtained in a 39-footer Without Cramming Things in. Seaworthiness and Reliability Important Factors.

By J. WALTER SCOTT

IT is only by telling a few of my old troubles that the readers of this can really appreciate my new cruiser Teresa IV.

My first real cruiser was a stock design boat of one of the best of the Eastern naval architects. She was what is known as a hunting cabin type, 38 feet L.O.A.; was a fine sea boat, and though she has since passed through the hands of several owners is still doing service. But she could take care of just two people in comfort, and as I wanted to sleep four people and still retain comfort I gave my ideas to the same designer, with instructions that he must keep within 40 feet L.O.A. He did it, and gave us the comfort all right, but while the cruiser was safe enough she was sure some cranky and—, did you ever see an automobile turn end for end on a greasy pavement, what might be termed a compound skid? Well, that is what this 40-footer would try to do in a following sea, turn around and look you in the face, and she looked like h—; well, I mean she was not handsome.

All of this time I had been taking and reading YACHTING, and likewise every other publication in this field—every single one printed in these United States, Canada, and old England as well. I had talked with every one I met on trains or trolleys, around hotels, on boats crossing the Lakes, on liners crossing the ocean, that is, with everyone who knew anything about cruisers or who thought they did, and it is surprising how many of both kinds you will find if you start out searching for marine lore. I even bought all kinds of books on this subject and read and reread them. I passed up the "speedster" stuff. The eight-



cylinder, fast flying, frail, flimsy *hydro-plano-submarinos* did not appeal to me; me for the deep sea, safe and sane family cruiser.

By this time I had absorbed so much maritime information that I just had to work it out of my system. A naval architect, who had never been regularly graduated, and so did not feel that he owned the ethics of the profession anything and was willing that I should get the strangle-hold on tradition, or even the toe-hold on precedent, assisted me and the result was a fine, roomy, comfortable cruiser that was a superb sea boat. She had about all the average 60-footer has, and was just 45 feet L.O.A. I was a real yachtsman for one season, but what it did to a hard-working man's pocketbook was a shocking shame. It was either work overtime and lose my union card or give up that craft, so I sold it to a man of many millions and commenced to plan a cruiser with about all the comforts, conveniences and class that the old craft had, and still get under forty feet. And, believe me, by comparison, designing the Olympia must have been dead easy. Anybody can design a big boat.

Well, here she is. Take a look at her. She is 39 feet long over all, 8 feet 6 inches beam and 2 feet 8 inches draft. You do not think she is so very much of a boat; you have seen similar ones, you will say, or some that seemed to suit you better. Now take a second look at her side elevation and then maybe I can show you a few things that are different. She has two cabins and a bridge deck, yes, but just note what an extremely short propeller shaft and still how little angle there is to it. It is a shaft so short that it will not whip and be noisy, and what little noise it might make will not be rumbling under either cabin floor. Note the sturdy stem, the stern post, the extra-size knees. Look at that deep keel and double sets of bilge clamps.

Though you cannot see it in this construction plan, she has extra wide fender strakes and bilge keels, extra heavy frames closely spaced, and 1¼-inch planking. You cannot see her lines, but she has flare and flam and a tumble home that is out of the ordinary. She sure will be some sea boat. Old features on the "forty-five" I have retained are the scuttle hatches and tar, topped by cement, for the bilge. The hatches are on center, even if it did necessitate the steering wheel being placed off center to port. The extra heavy steering gear is always accessible, in fact *in sight*, though inside. Tanks are amidships, with short feed lines also in sight. The engine room is vented, but in a little different manner. There is a collision bulkhead forward. The ground tackle is so arranged that chain and service anchor may be shackled tandem with rope cable and emergency anchor. A dinghy is carried on chocks on the center of the forward cabin top, where it belongs on a small cruiser, but is equipped with bridle, blocks and falls so that it may be launched with one davit by one man. She does not carry a real spar, but has more than a military mast that could carry a jury rig before the wind to make some port, though with the four-cylinder, 5x6, four-cycle 1912 Doman motor—well, she is just about as likely to break down as my watch is to stop after being carefully wound; possible, but decidedly improbable. There are stanchions for canopy and life rails too.

You will notice there is no skylight. They can be made not to leak on a small boat, but they are always in the way and we wanted the spot one would occupy for the dinghy, so we are using four decklights instead, and two on bridge deck. We get ventilation by a cowl in the forward box-hatch cover. In fair weather we raise the whole hatch, which is screened, as well as entire craft. Experience of a season showed me that with scuttle hatches it is never necessary to close the companionway doors in any sea, and not for any rain unless the wind is so strong that the canopy has to come down.

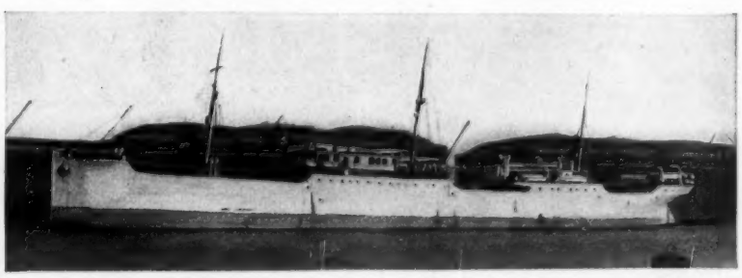
Now, note the cabin layout. The icebox is forward. Ice may be taken through the forward hatch instead of down companionway stairs. The galley is not in the engine room, but where one may cook in comfort and safety, though to be perfectly fair, I never have heard of an accident due to cooking in the engine room. Next comes pantry on one side, full-length clothes closet on the other. The berths extend all the way to the permanent drop-leaf table. This, we found by experience, gave more room and also kept the bed clothes from sliding to the floor. There is also a bureau, which is the exception on a cruiser under forty feet long. Do not fail to take notice that the toilet room is accessible by both owner and guests, and one does not have to climb over berths to reach it, either. In the after stateroom there is full head-room—that is, enough of it to enable one to stand erect while dressing, which is all that is necessary in a room that will be used only for sleeping purposes.

Fresh water tanks are under locker seats on bridge, another innovation for pleasure craft. No, there is not full head-room under the bridge deck. We could not possibly get it without re-designing the entire craft and doing away with about eighteen good features, and it really is not necessary to have head-room in the engine room—not nearly as necessary as under an automobile hood, for the motor car motor is a high-speed affair, but even at that it does not go out of commission in twenty-four hours' continuous running if given a little intelligent attention before starting. The modern marine engine is not the same as those of ten years ago, so a blacksmith shop need not be carried in the engine room.

No, I did not "get away with this" all by myself as they say. On the home stretch, so to speak, I had the pacemaking of one of the best naval architects in the country, Carlton Wilby, of Detroit, Mich. The boat was built at Wyandotte, Mich. The material is all that any one with all kinds of money could ask, and the workmanship simply superb.

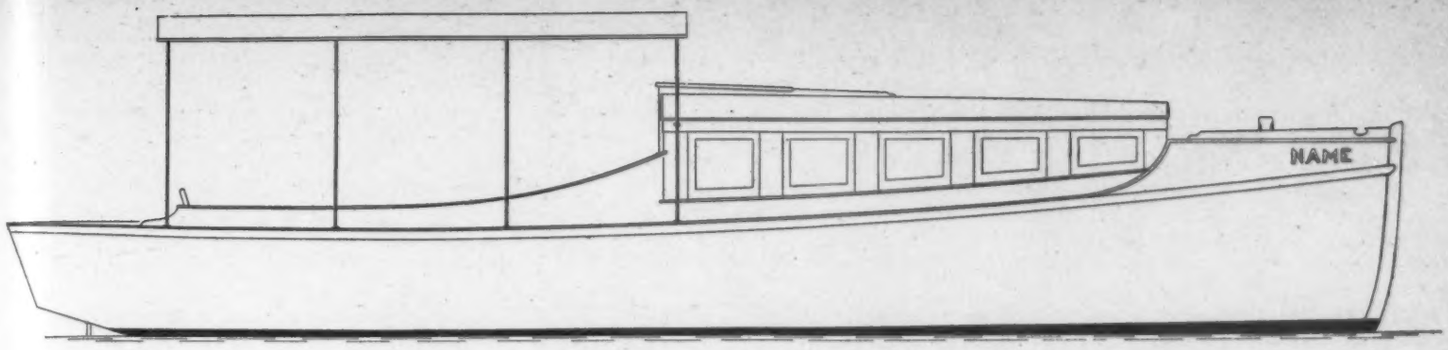
Selandia, an Ocean Steamship Equipped with Diesel Type Engines

THE new steamship Selandia, the largest ocean-going vessel yet built to be equipped with internal combustion engines, was recently in London on her first trip, where she attracted a great deal of attention from steamship men, yachtsmen and all those interested in the development of the internal combustion engine. She is owned by the East Asiatic Company for service between Europe and the Far East, and has recently completed a trip from London to Antwerp where she loaded for Bangkok, Siam. Her principal dimensions are: Length 370 feet between perpendiculars, breadth 53 feet, molded depth 30 feet, and a displacement of 9,800 tons. She is equipped with two 1250 brake H. P., 4-cycle, Diesel type engines, built by Burmeister & Wain, Copenhagen, who are the designers and builders of the ship. Each engine has eight cylinders, 20⅞" bore by 28¾" stroke, turning up 140 R. P. M.



SELANDIA, THE LARGEST VESSEL AFLOAT EQUIPPED WITH DIESEL TYPE ENGINES

The principal thing that causes comment in her appearance is the absence of a smoke stack, but as we have now become used to this in the larger power boats one does not notice the loss particularly. The lines of the vessel are fair, clean and pleasing. It is reported that her engine-room is particularly clean and airy, in great contrast to the ordinary engine-room found in steam vessels. While designed for a speed of 11 knots on loaded draft, she did 13.35 knots on her trial trip, while light. The engines run very quietly.



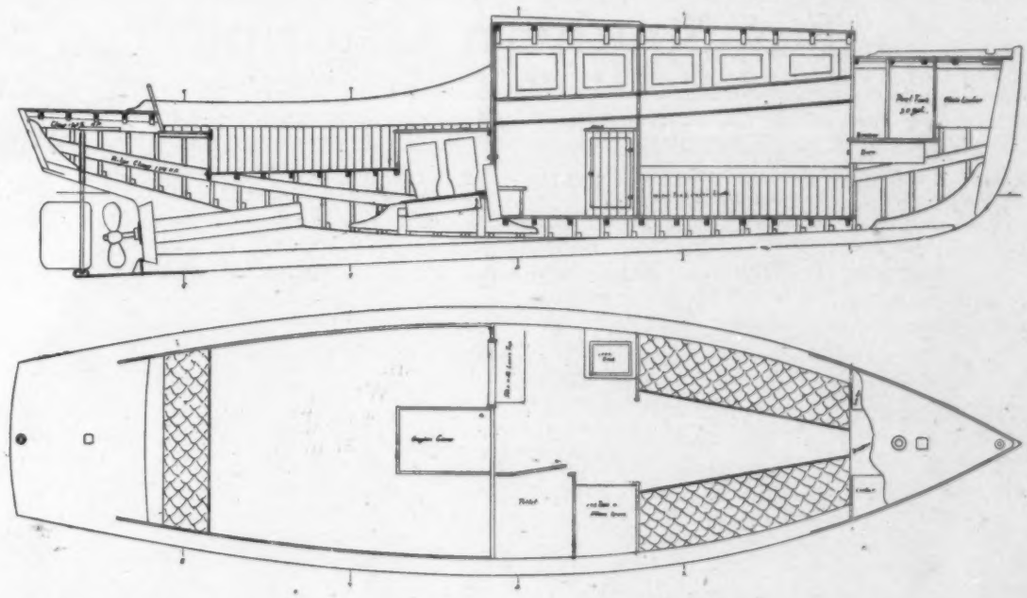
A Sensible Small Cruiser

THE boat here illustrated is now under construction at New Haven, Conn., from designs by Lane and Wyman, Naval Architects, and is for Mr. W. T. Ells of that city.

An inspection of the plans shows a happy combination of real ability and comfort with fair speed—a balance which is much sought but unfortunately not so often attained in power boats of small size.

Mr. Ells expects to use the boat for engine demonstration, and will install a two-cylinder 10-H. P. Mianus motor, which is expected to give a speed of 8½ knots, turning a 22-inch wheel at 550 R. P. M. The engine will be placed under cover in the cockpit where it can be controlled by the man at the wheel.

While the interior arrangements have been kept quite simple, a novelty is to be found in the swinging sashes, which when

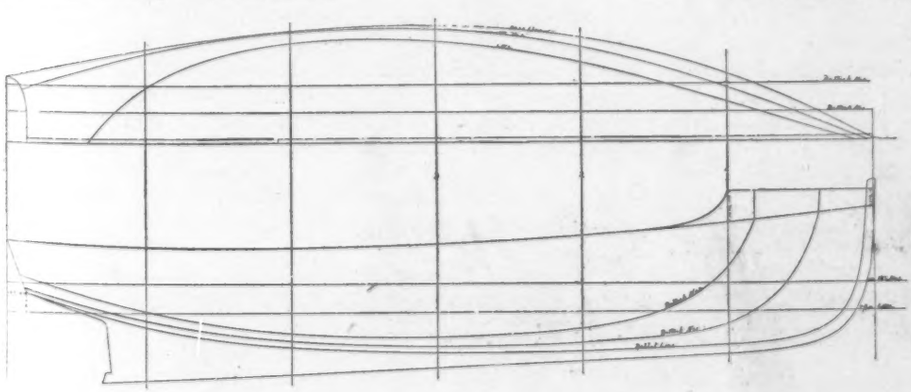


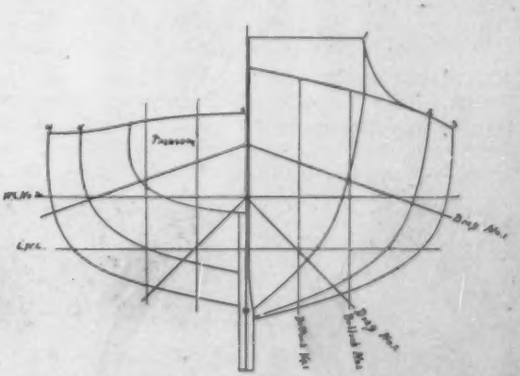
The bows show a buoyancy which is based upon "body" rather than the somewhat deceptive flare so much the vogue of late. The freeboard is generous without being so excessive as to make the boat topheavy, and the stern is one which should enable her to rise easily over a following sea.

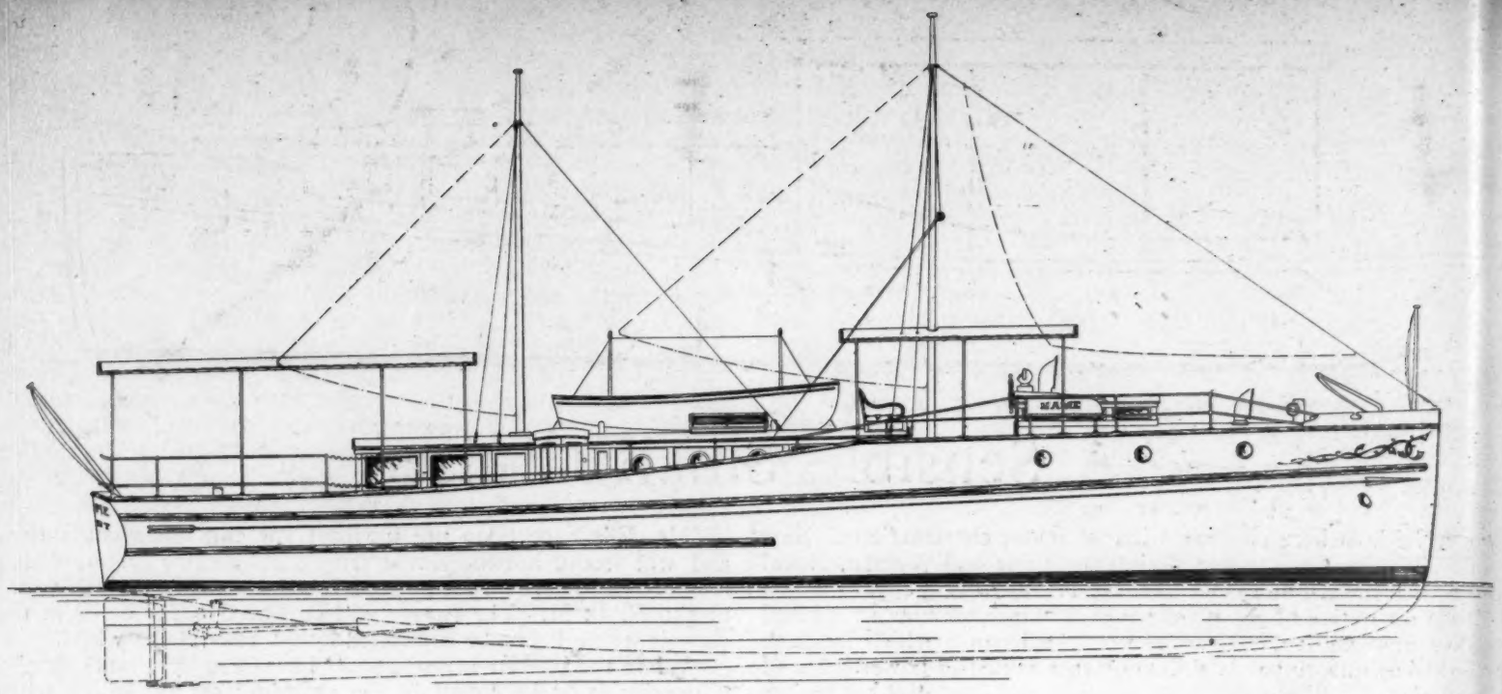
The principal dimensions are: 30 feet length over all, 8 feet beam and 2 feet 6 inches draft.

open fly up in such a manner as to form a low canopy. Thanks to this arrangement and to one open port at the forward end of the cabin, the boat will be kept comfortably cool when Mr. Ells takes her south next summer.

With the sashes and ports shut she should be "tight as a bottle," for her buoyant lines and solid construction give promise of excellent seagoing qualities.







For Southern Cruising

THE accompanying drawings show an unusually substantial and roomy cruiser being built for Mr. I. K. Heyward, of Charleston, S. C., by the Hudson Yacht and Boat Co. at Nyack, N. Y., from designs by Morris M. Whitaker, of New York.

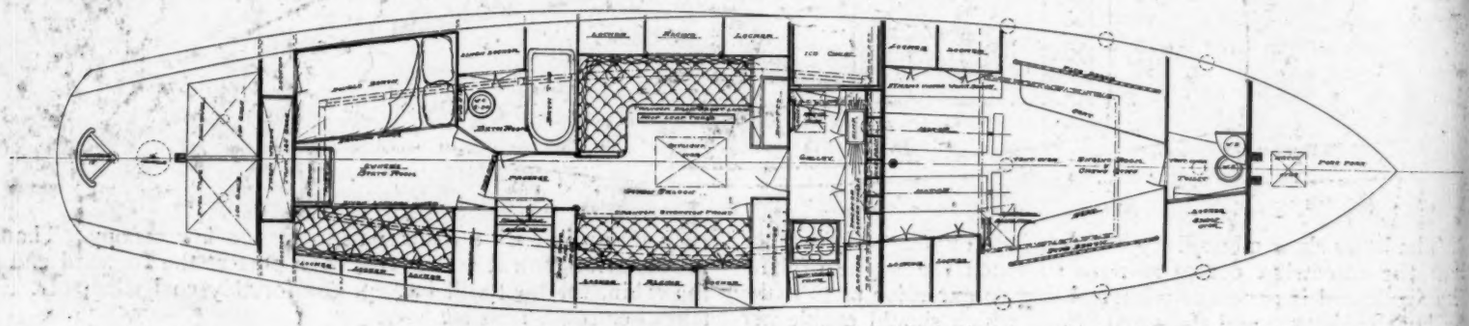
The boat is heavily framed and planked, as it is expected that she will be used for offshore runs and cruising in the West Indies.

The power plant will consist of two 18-H. P. Twentieth Century motors operating twin screws. Mr. Whitaker has also provided a modified ketch rig for use in emergency and to reduce rolling in a seaway.

Other features are a water-tight bulkhead between the engine-room and the galley, with stuffing boxes for the shafting, so that there is no possibility of any leak from the motors through the boat into the owner's quarters, gasolene piping all outside, and a special system of ventilation.

The generous flare forward and rounded tumble-home aft, characteristic of Mr. Whitaker's work, are in evidence in the lines. Mr. Whitaker says that the boat is heavier than any he has heretofore turned out of the same size.

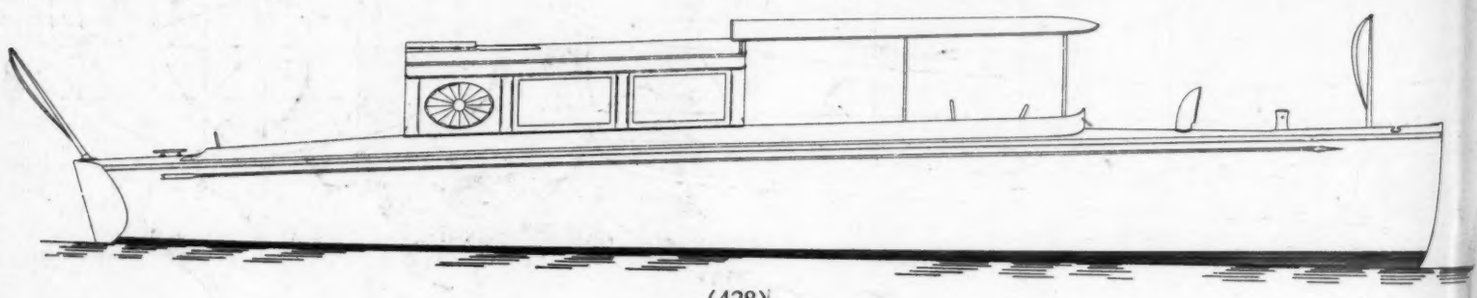
The principal dimensions are: Length over all 56 feet, extreme beam 12 feet 6 inches and draft 4 feet. She will carry a 12-foot tender on chocks on the cabin house, but handled by davits.

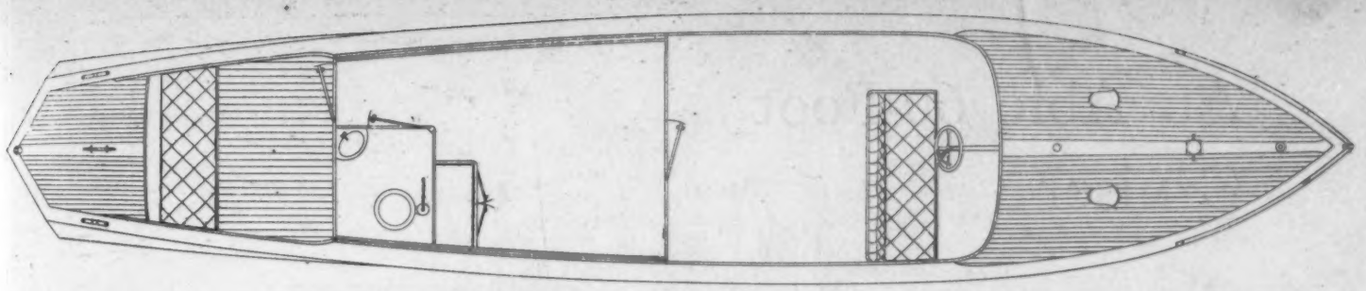


An Up-to-Date Day Cruiser

THE designs shown on this page are of a 40-foot day cruiser, a stock model, built by the Weckler Boat Company, of Chicago, Ill. One of these boats is now nearing completion at the plant of the builder. It is being built for the Anderson Engine Co., of Chicago and Shelbyville, Ill., to be used as a demonstration boat.

The yacht is 40 feet over all, 39 feet 2 inches L. W. L., 8 feet beam and 2 feet 6 inches draft. Construction details are light but substantial. All frame work is of selected white oak, the planking of cedar, copper riveted. The decks, cabin exterior and interior and finish of the cockpits are of genuine Honduras mahogany carefully selected for grain and color.





The power plant will be a six-cylinder 5 x 6-inch Anderson engine of 36 H. P., equipped with Bosch high-tension magneto, multiple disc clutch, reverse gear and self starter.

The motor is installed under the forward deck with the reverse gear lever extending through the cockpit floor at the steering wheel so that one person may have complete control without leaving the steering wheel. Entrance to the motor room is through a door in the bulkhead at forward end of cockpit. The bulkhead also carries a sight feed connected to the oiling system and the button for the self starter. The motor controls are centered in the steering wheel.

The arrangement is particularly attractive and comfortable. The driver's seat is very wide and will accommodate three persons. Four or five wicker yacht chairs can be used in the forward cockpit in addition to the wicker table generally furnished. The cabin contains saloon, with two disappearing-type folding Pullman berths, kitchenette locker and large toilet room fitted with pump yacht closet and running hot and cold water. Wicker yacht chairs are used in the saloon. The windows drop into specially constructed pockets. The after cockpit will accommodate several chairs, and, like the forward cockpit, may be fitted with canopy and side curtains.

There are two water-tight bulkheads,—one forward of the motor, the other at rear end of after cockpit. Gasolene is carried in a large pressed steel tank having welded seams, and galvanized both inside and out.

The lines have been laid down to give speed, and, owing to the plan of motor installation, the entire boat is available for the use of owner and guests. A better planned little boat it would be difficult to find.

The New Model Speedway Runabout

HOW well the growing demand for a family runabout and "general utility" boat, which is trim, able and speedy, has been met by The Gas Engine & Power Company and Charles L. Seabury & Co., Consolidated, in this year's stock model Speedway launch is shown by the accompanying photograph.

This boat is 30 feet long, and has the generous beam and draft of 6 feet, and 2 feet 2 inches respectively, yet is capable of traveling at from 14 to 15 miles per hour.

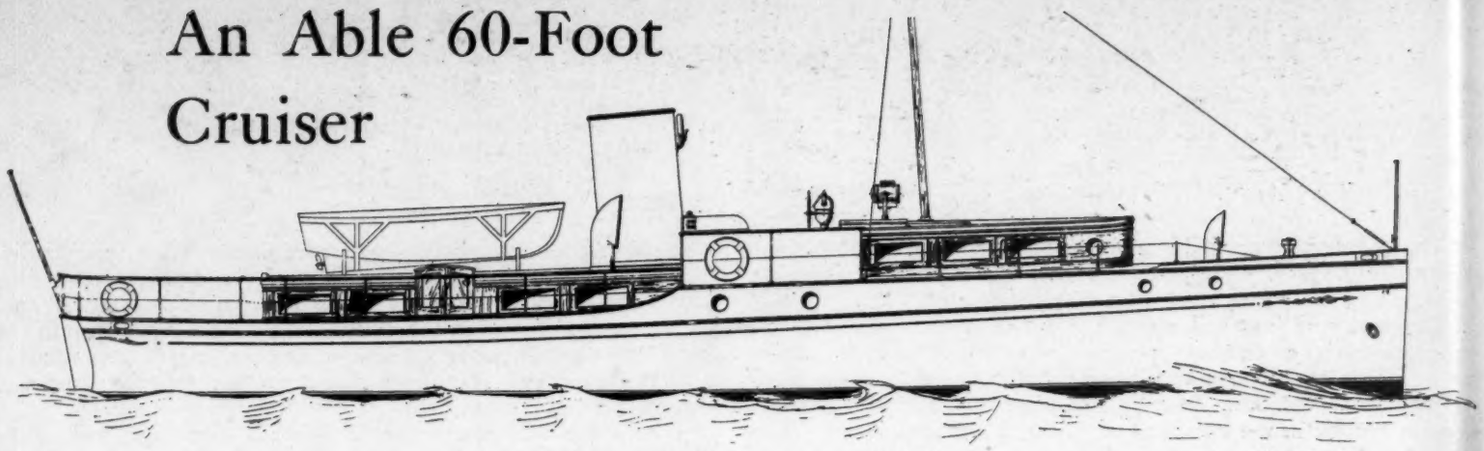
The hull is constructed of oak frames and cedar planking, copper riveted. Deck, coaming, engine-hood and interior trim are of selected mahogany.

As usual in this type of craft, the power plant is placed forward of the cockpit and has the regulation automobile control from the wheel. The engine is an 18-22-H. P. 4-cylinder Speedway motor, equipped with the Bosch dual system of ignition, McCord force-feed lubricator and an oil-leveling system for base of motor. The various indicators and gauges are located on the bulkhead abaft the engine, and the reverse lever is placed within easy reach of the helmsman.

The boat is unusually well fitted, having wicker chairs in the cockpit and linoleum on the floor, while the cockpit is covered by a removable khaki awning on brass stanchions.

Regulation deck-fittings, lights, etc., are included.

An Able 60-Foot Cruiser



THE accompanying plans show a 60-foot bridge deck cruiser designed by J. Murray Watts, N. A., for Mr. H. W. Russell, of Rochester, N. Y., and built by the Niagara Motor Boat Co. This boat is 60 feet over all; 59 feet water line; 14 feet 6 inches beam, and 4 feet draft. The motive power consists of two 35-H. P. Sterling engines, which give her a speed of 12½ miles. As Mr. Russell intends to use the boat for long-distance cruising, she is very strongly and heavily built, and her great beam allows an unusual amount of room for a boat of this length.

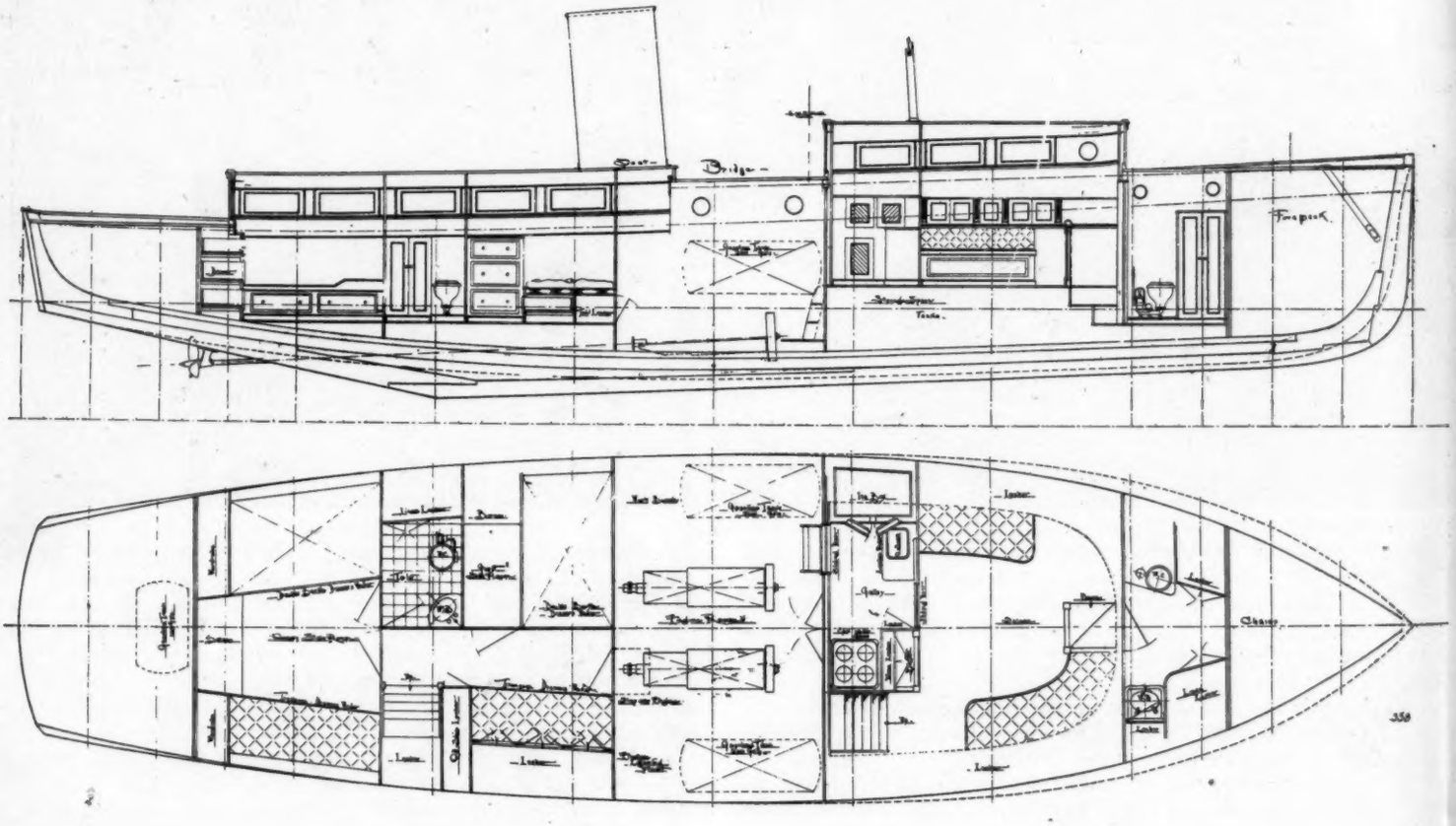
The arrangement shows a double stateroom aft, of generous proportions. Next to this stateroom is a toilet room, and, on the other side, a single stateroom with a double bed. Some idea of the roominess of the boat may be had by noting that the owner's double berth is 4 feet 2 inches wide. All these rooms open into a lobby with steps leading on to the main deck.

Under the bridge deck is located the engine room and crew's quarters with pipe berths for two men, and a crew's toilet on the starboard side. The main feature of the boat is the large deck house forward in which are located the galley and the main saloon. It makes a very bright and pleasant dining room with the windows raised enough to give a view all around in bad weather. The floor of this house is raised up about 4 feet so as to give a very large storage space below for provisions and general stores for a long cruise.

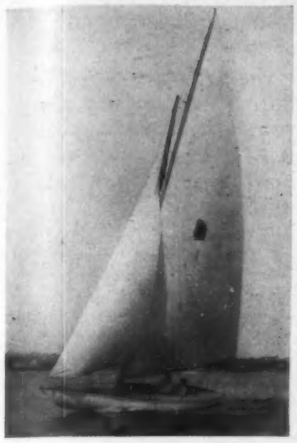
Seven people besides the crew can easily be accommodated on this 60-footer for long cruises.

Turning to the outboard profile we see a very powerful, seaworthy type of vessel, with a big stack amidships, which ventilates all the boat by means of electric ventilating fans and ducts, and a large bridge forward of the stack with complete controls to the twin-screw motors. There is a 28-foot mast stepped on the keelson, supported by heavy rigging and arranged so that a gaff trysail and fore staysail of storm canvas can be carried when at sea.

A powerful searchlight is located forward of the bridge for picking up buoys and is a great help for night work generally. The interior of the owner's quarters are finished in white enamel paneling trimmed with mahogany.



Wanderer VI, A Narragansett Bay 18-Footer



THE Wanderer VI, a photograph and the plans of which we reproduce herewith, is an 18-foot knockabout, designed according to the restrictions of the Narragansett Bay Eighteen-Foot Knockabout Association, and was winner of the Class Championship in the season of 1911.

She was designed by Bowes & Mower, of Philadelphia, and built by the Narragansett Bay Yacht Yard, for Messrs. Harvey J. and Dutee W. Flint, the well-known "Flint boys," of Providence, who have been in the racing game with a Wanderer for a number of years, and always in the class which is most keenly contested.

This class originated in Massachusetts Bay, and has provided fine racing there for the past ten years. Some of the boats were sold to other localities, where new classes were formed; so that now there are well established racing classes of this size on Narragansett Bay, and also on Lake Erie. Some excellent inter-club matches have been sailed between the crack boats of these localities.

Wanderer VI has proved herself a good, all-around boat, in any weather, but is especially fast to windward in a strong breeze.

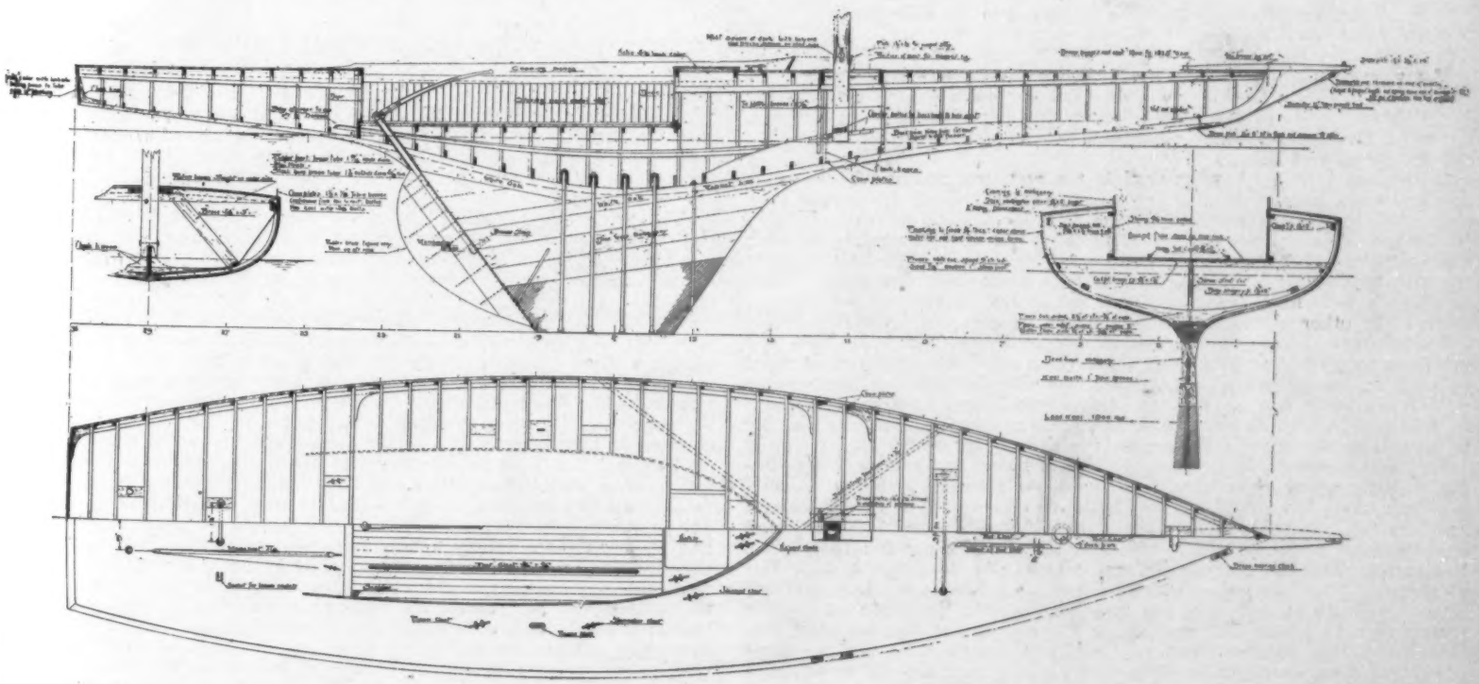
The gunter lug rig, which has proved successful in the sonderclass, was tried as an experiment, and gave such good results that it was carried throughout the season's racing. Wanderer VI is the only 18-footer carrying this type of rig.

It is an adaptation from the English sliding gunter rig, with this difference: that while in the English rig the gaff (or topmast, it is really) is made to slide up and down the mast on two iron rings or travelers which hold it always upright, the Wanderer's gaff is constructed like that of the ordinary fore-and-aft sail, and is simply peaked up so high that it lies practically against the back of the mast; so that when the sail is set its *plan* is that of the gunter rig. This arrangement gives all the advantages of a high, narrow sail, and at the same time permits the peak to be slacked off if necessary without first lowering the entire sail as one must do in the case of the English rig.

Her principal dimensions are as follows:

	Feet.	Inches.
Length, over all	31	0
Length, water line	18	0
Breadth, extreme	7	9
Breadth, L.W.L.	7	0
Freeboard, bow	2	0
Freeboard, stern	1	6
Freeboard, least	1	5
Draught, extreme	5	0
Displacement	450 sq ft.	
Sail area	4,118 lbs.	

It is as a designer of small racing craft that Mr. Mower is best known in the yachting world; and this speedy little 18-footer with its extreme overhangs, flat underbody and high, narrow rig with practically no sail outboard, is quite typical of his characteristic style.



Mess Room Talk

IN this Department we will answer questions concerning the problems which boat owners are constantly running up against in the operation of their motors or the handling of their boats. Theoretical as well as practical questions will be answered promptly by mail, and when of sufficient interest, will be printed for the benefit of YACHTING readers. This service is free. Don't hesitate to make use of it. Address, Information Department, YACHTING, 141 W. 36th St., New York City.

Propeller for a 25-Foot Cruiser

Braintree, Mass.

I am just "breaking-in" to the motorboat game and would like a little advice on propellers. I am having an engine built to my order and, having run an auto for six years, it is a 4-cycle type, 2 cylinders, bore 4¼, stroke 5, about 600 R. P. M. jump spark ignition, force feed splash lubrication. Boat is a monitor knock down (complete) 25x7 cruiser. What size and pitch propeller would be suitable—either two or three-blade?

F. H. G.

I would say that according to the A. L. A. M. horsepower formula, your motor will deliver about 8 H.P. at 600 R. P. M. To hold an 8-H.P. motor to 600 R. P. M. requires a 20x20 two-blade propeller, or a 16x24 three-blade propeller.

Power to Beat a 5-Mile Current

Can you give me information as to the size engine required for an auxiliary to a sail boat of the following dimensions: 36 feet long overall, 12 feet beam, and will weigh without machinery or passengers about 2½ tons.

The difficulty that I want to overcome is a 5-mile current in the St. Clair River for about 1 mile of its length, and I want an engine that will make that mile in 25 or 30 minutes, the mile stretch is from the Port Huron fish houses out into Lake Huron.

J. J.

For your boat to run a mile in 30 minutes against a 5-mile current would require a speed capability in still water of 7 miles an hour. The power required to drive such a boat at this speed depends much upon the general lines of the hull, rather than upon actual dimensions. If the lines of this boat are good, I should judge that about a 12-H.P. motor would deliver the required speed. I would recommend one of the 2-cycle 2-cylinder, heavy-duty type on account of the saving in weight, although a 4-cycle motor would give equally satisfactory service.

Power and Fastenings for a House Boat in Salt Water

Barataria, La.

I am writing you to ask several questions in regard to my river-built "houseboat-cruiser," on which I have lived for more than a year, sailing her 1,000 miles down the Mississippi under her sloop-rig of 75 yards spread. (In passing let me advise against any sailing for pleasure on a spring rise of Old Miss!)

Since last June we have cruised in the semi-salt waters of the southern Louisiana bayous, having her tied up in the woods for weeks at a time while hunting deer and duck, and as a "home" she leaves nothing to be desired. What I am getting at is this: She is not copper fastened, nor built for salt water at all, and though she has been in salt and the brackish bayous for a year she is tight as a drum still. But what I want to know is how long, reasonably, can she expect to hold up well in salt water? In other words, how and when, on a guess, will she deteriorate in salt water? I want to use her in salt until next winter at least, and am thinking of putting in a small "kicker" as auxiliary. But I don't want to stick an engine in and then have it tumble through her bottom—me with it—in some gulf coast blow. Of course I don't take many chances in the outside waters, but would like to beat from one bay to another along this coast which is the reason for the engine need.

She is 35.6 overall, 31 at waterline, 9-foot beam, and was built for sliding over the upper river bars, and draws but 6 inches at her head, sliding back along her practically flat bottom to 14 inches at the maximum. She has full bows, hardly any sheer, and if she had any model it must have been an ocean freighter looking head-on. She has a 7-foot 3-inch steel centerboard which, when down, makes her steady as a tub. Her planking is 1¼-inch redwood, and her ribs and bottom sticks are 2x2, placed every 10 inches. She has been mauled into the banks of the big river, in gales; jammed by driftage in the eddies, and had her mast tangled in treetops until we had to climb and cut the tree out, so many times that I've lost count of them and nothing ever seemed to hurt her or make her take in a drop of water. But the Louisiana bayous with their jagged cypress knees and crookedness are no place for sailing either, so the engine question.

Speed not desired. I've thought that a heavy duty, 6- or 8-H.P. with about 500 or 600 R. P. M. ought to send her along about 6 or 7 miles an hour. Should it not? Her keel is 6 inches wide by 4, and I think there should be other lengthwise stringers laid about her full length on which to bed the engine? Or would a flat bottom of this type offer about as good stability to the motor weight of say, 500 pounds, as a normally fashioned hull?

Please give me some advice about this engine proposition. But principally, I wonder if her bottom is good for the second season in salt water? Of course I keep her well copper painted, but I am wondering how the iron nails keep together. She is bolted strongly above, but I doubt if there is even a galvanized fastening in her entire anatomy. And is there anything one can do to lengthen such a fresh water boat's life in salt water, beyond copper painting and white leading? Give me the benefit of your knowledge in this.

C. T. J.

The fact that your boat is not yet leaking after having spent nearly a year in semi-salt water would seem to indicate that her rivets and planking were well protected. It is impossible to state how long such a boat would last in salt water, but it may be for years if her hull is frequently covered with copper paint. In any event, I hardly think she would be like the "one-hoss shay," and go to pieces all at once.

As long as she is tight at present, and the copper paint seems to protect her rivets from the action of the salt water, I believe you could safely install a 6 or 8 horsepower "kicker" in her with no danger of its dropping through the bottom. The larger motor would be better than the 6 horsepower plant, as a boat of this type will be slow anyway, and will encounter great resistance from any head wind. I doubt if her speed would be better than 6 miles an hour.

The motor should be installed on two lengthwise stringers placed on either side of the keel, and attached by bolts to alternate ribs. This will distribute the weight and vibration and forms a highly satisfactory installation. "The MOTOR BOAT," one of Outing's handbooks, which is written by Mr. Slauson, an expert on the staff of this magazine, has a chapter devoted to the question which you raise.

Sail and Ballast for a 17-Foot Catboat

Weehawken Heights, N. J.

Will you kindly advise me how much sail area I need on a 17-foot W. L. Cape Cod catboat, with a beam of 8 feet and about 2 feet draught, with low trunk cabin. Also about how much ballast same should carry. Boat is to be used for cruising on Long Island Sound; and oblige a subscriber.

M. W. T.

The proper size sail for you to carry on a 17-foot W. L. Cape Cod Cat, with 8-feet beam, which of course must be a single sail, is one containing from 300 to 350 square feet of sail, the hoist being moderate, the boom medium length, with a gaff about two-thirds the length of the boom, the gaff being well peaked up to make her go to windward well.

For cruising purposes for which it is your intention to use your boat it is best to give plenty of head to your mast, so that you will be able to get a good purchase in raising and holding sail up to its work, as this is a factor in heavy going, and especially when you want to send her to windward. Your sail should have three or four reefs in it, and should be made out of 6-ounce regular Lowell duck, as the best material is the cheapest in the end, and will outlast the cheaper cotton duck three to one.

You say your boat has about 2 feet draft. No doubt it is your intention to stow your ballast inside. If such is the case, it would be advisable to have small pigs made of either lead or iron, in length from center of one frame to center of next frame said pigs to be about 2 inches deep, and to fit in place snugly against inside of planking. You could make the pigs about 4 inches wide. If your frames are spaced 10 inches, center to center, the lead pigs would weigh about 35 pounds, and could be placed neatly alongside of centerboard trunk on each side. If you use iron for ballast, it would be best to make pigs about 6 inches wide. To insure the necessary stability for sailing on Long Island Sound, it would be advisable to put in from 700 to 800 pounds of ballast, as you want plenty of ballast for Sound sailing in a centerboard craft. If you deem the cost

of the lead or iron ballast beyond your means, then use copper slag instead, which makes a very cheap and at the same time serviceable ballast.

On Various Subjects

Boston, Mass.

I thank you for your kind response to my recent inquiry, and now may I further impose upon you to the extent of asking the following questions?

a—Is it a good plan to drain ice chest into bilge?
b—Should kerosene be used in side lights and riding light?
c—Is it a good plan to waterproof sail covers?
d—Is acetylene gas desirable for illuminating a cabin? L. M. W.

(a) Yes, if automatic bilge pump is used. No, if bilge would otherwise be dry. If hull leaks slightly so that water would collect in bilge under ice box, anyway, extra water from ice box would make no material difference, and could be pumped out when bilge is bailed. It should not be allowed to collect, however, out of reach of bilge pump.

(b) Yes, unless such lights are only designed for sperm oil, as is sometimes the case. It depends upon the design of the light, although the majority are made to burn kerosene.

(c) This will work well, but is hardly necessary if sufficiently heavy canvas is used. Khaki, if heavy enough, makes a very good waterproof covering.

(d) Acetylene gas is exceedingly desirable if the owner does not mind cleaning of the generator and the frequent renewal of its calcium carbide. In other words, the gas is highly satisfactory as an illuminant, but the generator is always more or less of a nuisance to care for. Storage tanks of acetylene gas can now be obtained, however, that are very satisfactory, and do away with the generator entirely.

Power for a 22-Foot Catboat

San Francisco, Cal.

I am hoping to have constructed a Cape Cod catboat, about 21 or 22 feet overall, with auxiliary power. I would like to know who could best advise me where to place the engine so as to have it out of the way. My boat must be of the centerboard type on account of shallow anchorage. Would it be possible for me to get plans (blue print) of such a boat, without having it specially designed? Would the "auxiliary feature" change the plans of my boat except as to gasolene tank and shaft log? Any information that you could give or any references to publications, that would help me out, would be greatly appreciated. J. H. P.

The best place to install the engine in a catboat such as you describe is under the cockpit floor, as far aft as it will conveniently go. There will be just about room between the after end of the centerboard trunk and the stern knee to place it. Probably the cockpit floor will be low, and this will necessitate a square hole cut in it to allow the top of the cylinder to project above it. This should be covered by a box high enough to go over the top of the cylinder. In this way the engine will be out of the way, and will take up surprisingly little room. If the boat has a cabin the cockpit is probably shorter than otherwise, and it is advisable to have the motor outside rather than in the cabin. Leave enough room between the after end of the centerboard trunk and the flywheel to allow room to start the motor.

Putting in an engine would not necessarily change the plan of the boat. The propeller aperture could be made either in the deadwood or in the rudder, or in both, as the design of the boat necessitates. The shaft log would probably go through the deadwood, though it might have to be placed outside it if many bolts were encountered in the deadwood. The weight of a moderate sized engine with gasolene tanks would not be sufficient to alter the trim of the boat to such an extent that it could not be regained by shifting the ballast. If a feathering propeller is used, of which there are several good makes on the market, the drag would be very little while under sail.

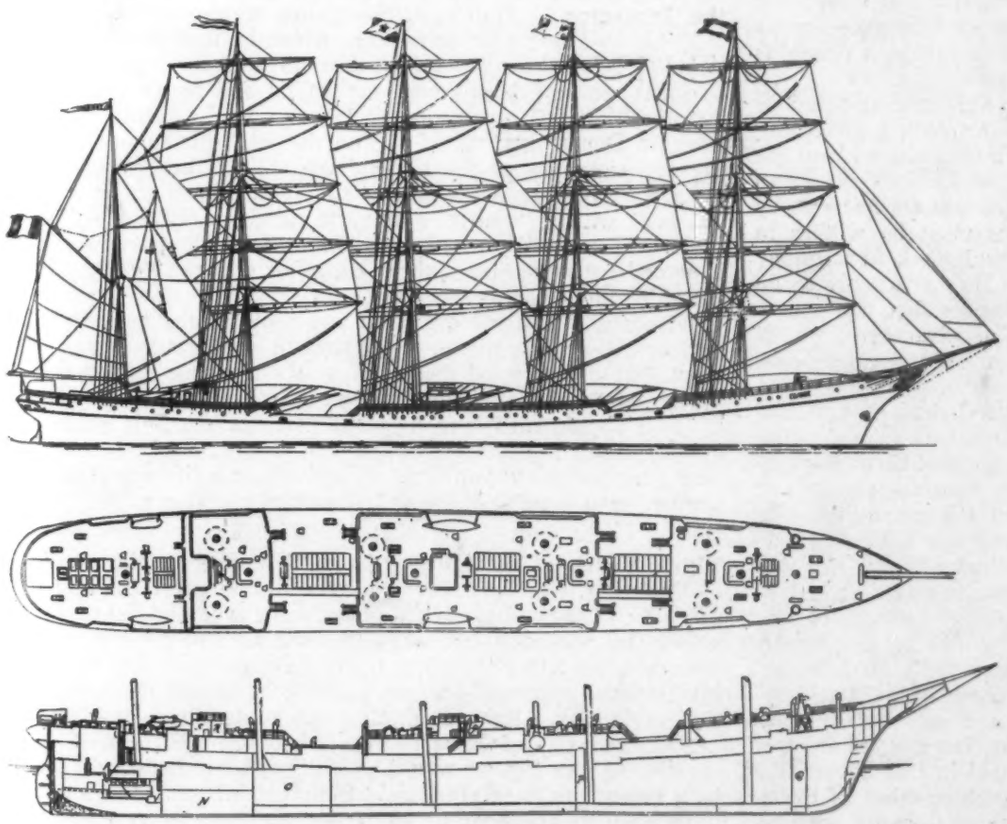
You might get blue prints of some boat already designed by writing a naval architect who makes a specialty of such boats. We have had plans of such boats in YACHTING at various times, but they are hardly complete enough to build from. Any builder who knows anything about building a boat could make plans for installing the motor.

Portable Motors for a 16-Footer

Umatilla, Fla.

Please give me advice about procuring portable motor for 16-foot, flat-bottomed boat which weighs 290 lbs. I do not want a very expensive motor, as the boat would not justify it. What I do want is a *dependable* motor, that will propel the boat at from 3 to 5 or 6 miles an hour. R. L. T.

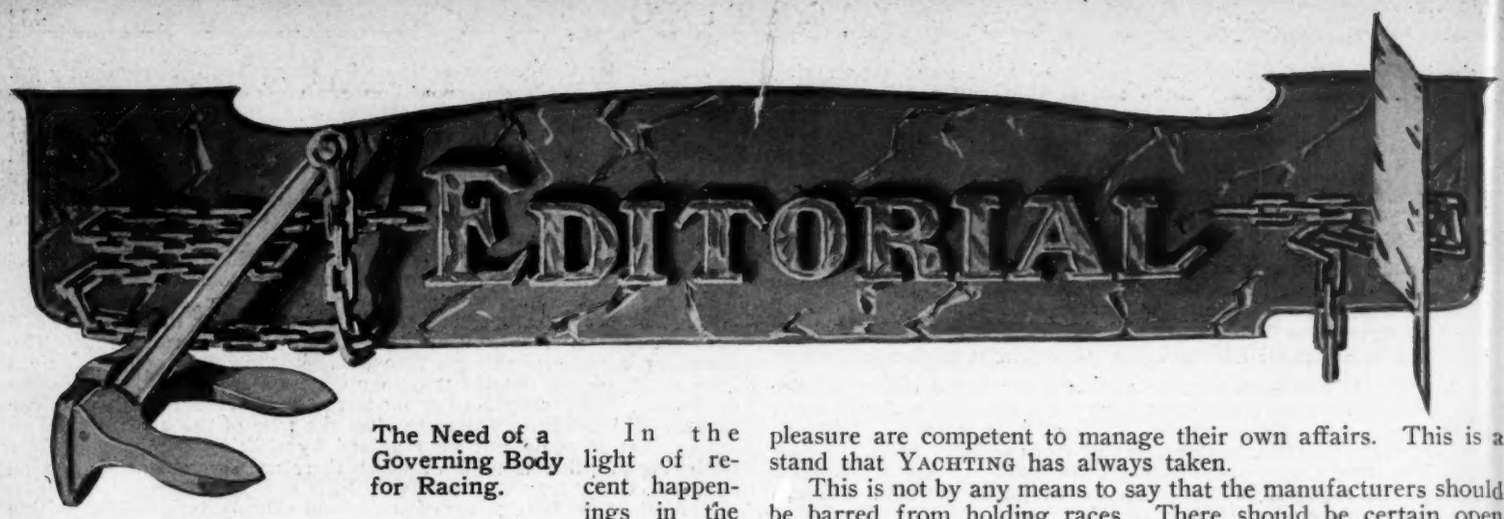
There are two or three good portable motors on the market which would answer your purpose. These are single cylinder engines of about 1½ H.P., arranged to clamp on the stern of the boat, weighing from 50 to 60 lbs. They are dependable and reliable, and ought to drive your boat, in still water, about five or five and a half miles an hour. I used one all last season, and found it gave good service, and was always ready to go. It is in as good condition now as it was a year ago. The two firms that make a specialty of these are The Waterman Marine Motor Co., Detroit, Mich., and The Evinrude Motor Co., Milwaukee, Wis.



La France, the Largest Auxiliary Cargo Vessel in the World.

THE internal combustion engine is playing a large part in keeping alive the square-rigged vessel of Europe. Practically all of the new ships that are built are being equipped with this type of auxiliary power, while many of the old vessels are having "kickers" installed under the living quarters aft.

The advantages of these engines are apparent, chief among them being their ability to shorten the length of the passage by their use in calm weather, and the saving on the towage bill when entering and leaving port. La France, the last and largest of these to be built, the plans of which accompany this, is a 430-foot vessel with a beam of 57 feet 4 inches, a depth of 28 feet 3 inches, and a draft of 24 feet, loaded with 6,500 tons of cargo. Two engines of the Diesel type were installed, of 900 H. P. each. These are 4-cylinder, 2-stroke engines, using crude or heavy oil for fuel. The vessel was recently launched in France for the deep water trade.



The Need of a Governing Body for Racing. In the light of recent happenings in the power boat and yacht racing world, the crying need of some strong, central, controlling body for the sport is more and more forcibly driven home. Practically every other form of organized sport has found such a body a necessity, and yet both power boating and sailing interests have gone drifting on until the former branch of the sport is in a chaotic state, with a number of rival organizations in different sections of the country each making its different rules, each striving for supremacy and each, as a matter of fact, with very little or no power to enforce its rulings or really govern.

What is needed is a strong body, representative of the clubs and associates throughout the country, which would formulate wise and uniform rules, watch legislation affecting the sport, interpret rules and act as a court of last resort in cases of dispute. This need not and should not interfere with the present local associations or clubs, which may still run their own regattas and local, or even national, events; but it should be a body with some powers more than advisory, which could bring about uniformity.

In sailing circles the present associations, while mostly local, have done and are doing excellent work towards regulating the sport; but most of them have no actual power and it was only by a conference arbitrarily gotten together that a uniform racing rule was adopted, and now that portions of that rule are in question there is no permanent body which can make a ruling as to the intent and purpose of them.

Whether or not any of the present power boat associations in the field are strong enough to bring about such a governing body is for themselves to prove, but it can never come without the loyal support of all the clubs and local associations of which they are made up—a support which is at present conspicuous by its absence. These clubs and associations must be willing to sacrifice something to the common good and work in harmony with other sections of the country. Until they are ready to do this they can accomplish nothing. The benefits that will accrue from such a body largely outweigh any disadvantages, and if the sport is to become nationalized such a body is imperative.

The Ethics of Amateurism. There has been a good deal of agitation lately in power boat circles as to what constitutes professionalism as applied to boating, and whether or not those whose business interests are in any way identified with the commercial side of the sport should be allowed any voice in the regulation of the sport, or any participation in it. As a matter of sporting ethics it is not fair that any one who has any ulterior interests in the game should be permitted to participate; and since racing constitutes the biggest part of organized boating it is not fair to the strictly amateur sailor who goes into the thing, frequently on a limited pocket-book, and solely for the sport, to be forced to "buck up" against the entry of a manufacturer who not only has facilities and the means for outbuilding the amateur, but also knows that such outlay as he may make may be returned in free advertising should his boat or engine be fortunate enough to win. If this is so, it likewise holds that such business interests should not play a part in the framing of the laws which the amateurs are to follow, for it is conceivable that those who go into the sport for pleasure are competent to manage their own affairs. This is a stand that YACHTING has always taken.

This is not by any means to say that the manufacturers should be barred from holding races. There should be certain open events in which any manufacturing firm is entitled to enter one of its products. Amateurs might also be permitted to enter such events if they desired, the only difference being that they do so with their eyes open, and do not enter a seemingly amateur event only to find that they are racing against high-class professionals.

This whole question has been thrashed out in the automobile racing game, most of the big events being held under the auspices of a manufacturers' association, for the benefit of manufacturers. There is no question that the entry of boats by firms of engine manufacturers and boat builders has done a lot to keep out entries from events that originated as strictly amateur affairs.

The foregoing is not meant to minimize what these manufacturers and manufacturers' associations have done for the sport. They have undoubtedly contributed much, both in money and time, and in the holding of events of national importance; but if the amateur sailor is to come into his own and get the most from the sport, which he supports by a liberal expenditure, amateur and manufacturers' events should be separated.

Be Prepared for the Inspector. With the issuance of a new circular by the Bureau of Navigation and Steam Boat Inspection Service, in which is defined more or less definitely, for the use of boat owners and for inspectors, the various items of boat equipment called for under the present law that will pass inspection, it looks as if the Steam Boat Inspection Department would be "on the job" this summer watching for violations of the Federal law. So it behooves all boat owners to get busy and see that they don't go to sea in a Class III boat with a "dinky" equipment suitable only for a Class I craft. That the life preservers will really float, that the whistle is something more than a cheap tin affair that can be heard from the clubhouse float to the shore, and that the fire-fighting apparatus will really put out a fire are some of the essentials. It may cost some little money at the start to get the necessary equipment, but it is a good deal cheaper than paying a $100 fine to Uncle Sam, with the attendant mortification that goes with it.

You should also bear in mind that not much is gained by buying cheap stuff and that the best is always cheapest in the long run; and when you want a fog-horn or a life preserver or a compass you want it badly and you want a real one.

Thirty Years of Yachting. Starting in this issue we are showing by a series of photographs the great changes that have taken place in the type and rig of yachts in the last 30 years—a change that the present generation does not realize and that the older hands have more or less forgotten in the development of the present rule boats and the simplification of rig, etc. If any of YACHTING's readers have any interesting photographs of boats in vogue between 1885 and 1895, of obsolete type or rig, we would be glad to "have the loan of them" long enough to have cuts made for reproduction. If some who have been at the boating game for the last 30 years will go through their old photographs many interesting ones should turn up.

VALENTINE'S

VALSPAR

"The Varnish That Won't Turn White"

This boat's hull is varnished with Valspar. The spray soaks the varnish from stem to stern, the water dries off in the sun and the Valspar emerges after every wetting bright and clear and lustrous and new-looking

This boat is the "Vita," winner of the Southern and Long Island Sound Championships. Its owner, Rear Commodore J. Stuart Blackton, of the Motor Boat Club of America, writes:

"I have used Valspar for two seasons and find it the only varnish that does not turn milky in salt water."

Salt water doesn't hurt Valspar. Neither does fresh.

When other varnishes are turning cloudy and white and losing all their lustre, Valspar stays on the job and smiles in the sun as brightly as when put on.

Your boat, be it a motor boat, sailboat, launch, dinghy or canoe, will stay bright in water, if you varnish it with Valspar.

Send for the proof of Valspar's superiority for floors. We have it.

A book full of just the information you need about varnishes (including all the tricks of using varnish effectively) will turn up in your mail promptly if you use that coupon before we give your copy to someone else.

FILL IN—TEAR OFF—MAIL TO-DAY
VALENTINE & COMPANY, 456 Fourth Avenue, N. Y. (Y-6)
Name.....
Address.....
Send me free of cost a sample of Valspar and materials for a real test.

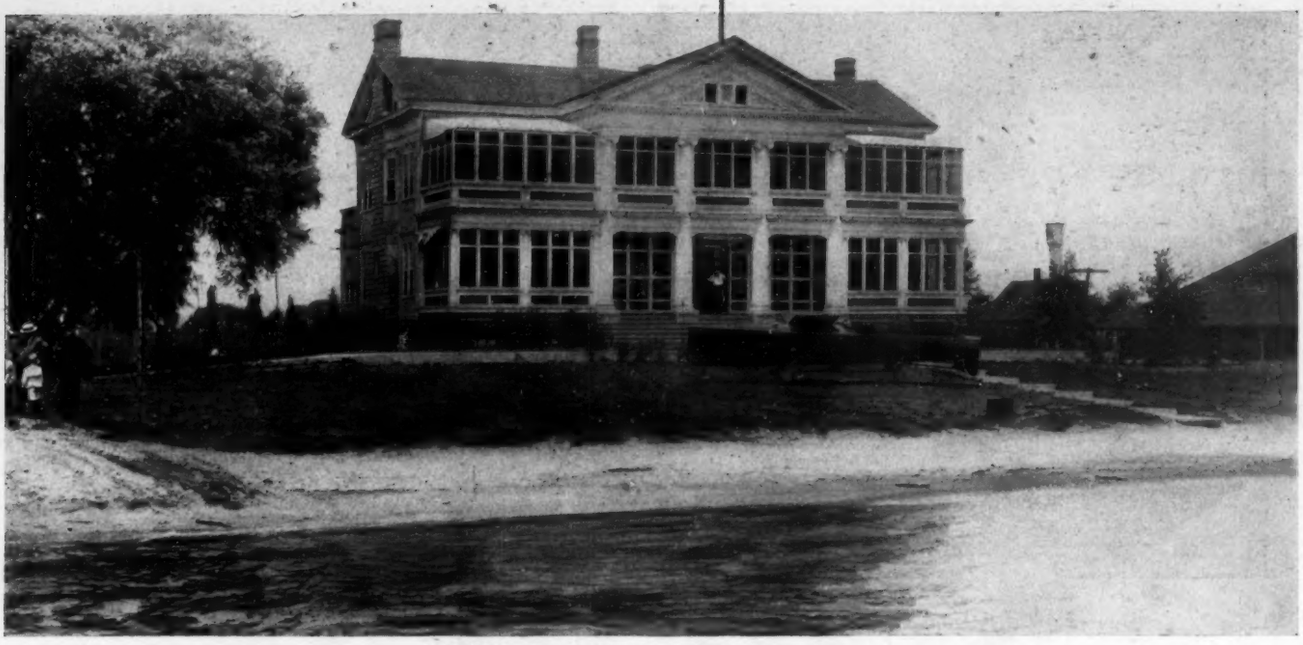
VALENTINE & COMPANY

456 Fourth Avenue, New York City

TRADE VARNISHES MARK

Chicago Boston Toronto
London Paris Amsterdam

Driftwood from Along Shore



HOME OF THE DETROIT MOTOR BOAT CLUB

Jane S. Wins Southern Championship

The 1912 Southern Championship for speed boats was won by the Jane S, owned by Charles S. Smiley, of St. Lucie, Fla., with Diana, second. The races determining the championship were two 50-mile handicap events held on April 5th, the last day of the St. Augustine Power Boat Club's Regatta, at Mantanzas Bay, Fla.

In the first of the two long races there were several accidents. The Vita, last year's champion, owned by J. Stewart Blackton, was forced to withdraw owing to the loss of her rudder. Caroline II burned out her exhaust connection, and Ruth K dropped out of the race with a plugged water circulation pipe. Diana, the 32-foot displacement boat owned by D. H. McMillan, of Jacksonville, powered with a 100-H.P. 8-cylinder Sterling engine won the 32-foot class, defeating a number of prominent boats.

Vita Jr. and Seminole were also prominent in the first two days' racing of the regatta.

Following the championship events was a banquet tendered to the contestants by the St. Augustine Power Boat Club, at which the awarding of prizes took place.

The regatta was remarkable among power boat races for the good spirit prevailing among the contestants, not a single protest having been filed before the judges in all the three days' racing.

Jane S, the winner of the championship, was powered with a 45-65-H.P. Sterling engine similar to those installed in the new 20-foot hydroplanes "Dixie Jrs."

Long Distance Race of the Colonial Yacht Club

The Colonial Yacht Club this summer will conduct what promises to be one of the best motor boat races of the season. It is a 183-mile open affair, and it is sure to bring out the best boats in competition. Senator Cyprian C. Hunt, of the Colonial Y. C., has donated five beautiful trophies for the event, which is to be held June 22d.

The course will be from the Colonial Y. C. clubhouse, at 140th street and Hudson River, down the river, around the Battery and up the East River, past Throg's Neck, Stepping Stone and Execution lights, and thence northeast by east 64 miles to and around Cornfield Point Light vessel, and return over the same course, finishing at the clubhouse.

Manhasset Cup Challenge

The Seawanhaka-Corinthian Yacht Club has challenged the American Yacht Club for a race this coming summer for the Manhasset Challenge cup. This cup was sailed for last summer and Joyant and Corinthian were disqualified because the committee in charge of the races decided that they did not conform to the requirements of the rule of measurement.

The Indian Harbor Yacht Club wrote to the American Yacht Club, which organization, through the disqualification of the two yachts, still retains the trophy, and suggested that the trophy be returned to the original donors, the Manhasset Bay Yacht Club.

The challenge issued by the Seawanhaka-Corinthian Yacht Club would indicate that the American Club still retains the trophy. The Corinthian is still enrolled in the Seawanhaka-Corinthian Yacht Club and may rac again.

The Manhasset Bay Yacht Club has also signified its intention o challenging for the cup, while there is talk of the Chicago Y. C. enterin its new Gardner 31-footer.

Yacht Racing Association of Massachusetts

At the annual meeting of the Yacht Racing Association of Massachu setts held March 21st, officers for the coming season were elected, a follows:

President, C. F. Adams, 2d; Vice-President, B. S. Permar; Secretary A. T. Bliss; Treasurer, I. H. Wiley. Executive Committee: C. F. Adams 2d, R. C. Goudey, H. W. Robbins, C. K. Small, A. J. Bliss. The associa tion is composed of twenty-six yacht clubs.

Winners in 1911

We are frequently being asked by boat owners and those who take a interest in yachting, who are the winners of certain events in last year racing. This is often a particularly hard question to answer, as many local or club events are not published in the magazines and only the win ners of the principal races are available. Edward C. Smith & Co., maker of varnish, of New York City, have, however, published a booklet enti tled "Winners of 1911," which contains a list of all the winners in all the yachting events throughout the year, both in power and sail. Not only does it contain winners but also the starters, owner's name and his racing number. It is a specially complete reference book for all those interested in yachting, and may be had for the asking by addressing Edward C Smith & Co., Post-Office Box 1780, New York City.

American Sails Abroad

As an indication that the sport of sailing is not dying out, but is in healthy state in spite of the rapidly increasing growth of power boats it is only necessary to see what sail-makers are doing this year. In recent letter received from Messrs. Wilson & Silsby, Rowe's Wharf, Bos ton, Mass., one of the best-known firms of sailmakers in this country, the state that they have orders for 150 suits of sails on their books, which more than at this time last year. Among the well-known yachts for whic sails are being made are the schooners Shyiessa IV, Palestine and Car II; the ketch Esperanza; the sloops Trivia and Timandra; and for th Manchester, Islesboro and Nahant one-design classes.

A gratifying sign is that foreign boat owners of northern Europe ar coming to America for their sails. This is particularly encouraging i view of the fact that sails of the same quality of cloth can be had in Eng land at approximately 20 per cent less cost. It seems strange in the fa of this that American owners should not always buy from sail-makers i their own country. Among the sails being shipped this year are nin suits for Finland; six suits for boats of Stockholm, Sweden; one for 6-metre boat for French waters; one for a 45-footer of Stockholm fo use in the yacht races in connection with the Olympic Games; and fo a new French schooner.

HENKE MARINE BRONZE
TRADE MARK

Do Barnacles and Grass Trouble You?

If so, then this will interest you

How many times have you said to yourself, "If I only knew how to keep off the confounded barnacles and grass, I would be the happiest man on these waters." This is what Mr. Robert Henke, Jr., said to himself about eighteen years ago.

Being of a studious and inventive turn of mind, he set about experimenting on different compositions. Each new compound was a subject of ridicule among his friends, as well it might be, because there were many failures and many disappointments. One ingenuous friend named his unsuccessful mixtures "Food for barnacles."

A weaker man would have quit in disgust very quickly. But not so Mr. Henke. He kept on experimenting and failing for year after year. Finally, about five years ago, he experienced his first success. A few added improvements and HE HAD WHAT HE WANTED.

At last the world had a paint which ABSOLUTELY would keep off barnacles and grass. From ridicule the comments of Mr. Hencke's friends changed to enthusiasm. Can you imagine how GOOD it must have been to bring about that change?

Still, being conservative, Mr. Henke would not place his paint on the market until he had satisfied himself that it would have the same effect under ALL conditions. He tested the paint for two years thereafter and was ABSOLUTELY SATISIFIED with the results.

HENKE MARINE BRONZE has proved to be the most wonderful paint ever invented. IT DOES JUST WHAT YOU HAVE BEEN WISHING FOR. Think what this means to you, Mr. Boatman—A PAINT WHICH WILL ACTUALLY KEEP OFF BARNACLES AND GRASS.

HENKE MARINE BRONZE is made in two colors, green and copper. It is put up in a patented can, also invented by Mr. Henke. This can keeps the bronze ingredients separate from the liquid until it is opened, thereby insuring a FRESH MIXED PAINT REGARDLESS OF AGE. Another feature about **HENKE MARINE BRONZE** paint is that after you apply the first coat you can proceed to apply the second coat, for it DRIES IMMEDIATELY. Is this not a time saving feature for you?

We ABSOLUTELY guarantee **HENKE MARINE BRONZE** to be anti-fouling.

If you will give **HENKE MARINE BRONZE** a trial you will be convinced, and we are certain you WILL NEVER USE ANY OTHER PAINT FOR YOUR BOAT BOTTOM.

The prices are as follows:

$7.00 for one-gallon cans.
$3.50 for half-gallon can.
$1.85 for quarter gallon cans.

No higher than the best heretofore and cheaper in the end.

If your dealer hasn't **HENKE MARINE BRONZE** he may try to induce you to take something else which he has in stock, and tell you it is JUST AS GOOD.

The fact alone that he says "JUST AS GOOD" sounds like an imitation.

THERE IS NO PAINT JUST AS GOOD.

INSIST ON **HENKE MARINE BRONZE.**

If your dealer cannot supply you, write us.

Send for booklet and testimonials, anyway.

When ordering, state the color you want.

HENKE MANUFACTURING CO.
135 Bowery, New York City, N.Y.

Henke Mfg. Co., N.Y.

Gentlemen: Kindly send me your booklet and testimonials as per advertisement.

NAME .....
ADDRESS .....
TOWN .....
STATE .....

OF INTEREST TO THE SKIPPER

A Trouble-Proof Ignition Battery

Only within the last few years have motorboat owners realized how many so-called engine troubles, coil and other annoyances can be traced to poorly working batteries; and when located, laid, not really against the batteries themselves, but to the improper surroundings of the cells.

A short time ago it was no uncommon thing to install the best reverse mechanism and coils and give careful forethought to the layout of exhaust line and water-cooling piping, and then throw the batteries loose in a locker, where the dampness from the bilge or leakage from the deck above could drain down upon them. Every time the boat rolled the loose cells would tug at the wire connections, and when the batteries short circuited through moisture, or the insulation rubbed off, Mr. Owner would wonder about the carburetor, or why engines are so weak.

Standard Patterson 6 cell battery set.

By an elimination test he would discover that his troubles were electrical, and the maker of the battery would come in for a lot of condemnation. All this with a fine disregard for the fact that a battery must be kept dry and be given protection, to say nothing of keeping good connections between cells, etc. Skippers became convinced, in time, that some means of protection should be devised. Some placed the batteries in a wooden box, separating them by blocks of wood, as a precaution against short circuiting. Others stood the dry cells upright in a box, poured paraffine around them, connected up the batteries, brought the terminals through the sides of the box, put on and fastened the cover down watertight. This was a better scheme and an advance in battery protection. The drawback was that should some of the cells run down more quickly than others it meant an awkward job to get at them for removal. It remained for someone to arrange a battery box absolutely watertight and moisture proof, in which a cell would be hermetically sealed as long as desired, yet removable when desired, and safe from jar or any chance of broken connections.

Four circuit Patterson battery set.

In the Patterson Battery Set a screw-top battery cell, without wires or binding posts, screws into a hard rubber plate, automatically making all connections. This hard rubber plate forms a substantial, waterproof cover for the battery box, and as all contacts are moulded solid into this rubber plate, no loosening of connections, bad contacts, trouble from dampness, or other annoyance is possible. The battery cells are suspended from the plate.

With the Patterson Battery Set renewing a set of batteries is easy, and though accomplished quickly it cannot be wrongly done by inexperienced persons. Individual cells may be tested with ammeter without removing cells from holder. An automatic bridge in each cell receptacle permits the removal of one or more cells from the set without interrupting the sparking circuit, and provides a quick test for a weak cell.

Front view four circuit battery set. Plate used in combination Model G. U. 26, etc.

The model C-6 is a popular and medium-priced outfit. The cabinets are made of clear oak, finished on the outside with three coats of spar varnish. A heavy seamless layer of Neptune rubber compound is flowed over the entire inside surface making it absolutely water and dampproof.

A modification of the C box is the outfit CL, in which the cells are arranged in *single* row in a long, narrow box particularly adapted for stowing in narrow lockers. The C models are built in 6, 8, 12 and 16 cell capacities, and are connected in either series or in series-multiple giving in the various types voltage of from 6 to 12, and initial amperage of from 20-25 to 60-75, so that if the engine be single or multiple-cylinder the correct ignition set for it may be obtained. The CL types are built in 4, 6 and 8-cell sizes, with voltages of 6, 9, 12, respectively, and initial amperage of from 20-25 for the 4 and 6-cell outfits, to 40-50 on the 8-cell set when connected up in a single series of eight.

A development along the lines of greater flexibility and capacity brought about the combination, Multiple and Series outfits in which, by means of a circuit control switch, four different circuit connections are available. If it is desired to control or change circuit from some point distant from battery box a distant-control panel is made. The Patterson distant-control panels, in conjunction with "Combination" plate models, permit the operator to change the set-up of his battery at will.

View of strip type model "A," showing method of mounting on side partition.

For use with make-and-break ignition system, the Patterson screw top spark coil is made to take the place of one of the battery cells, and when screwed into the battery holder plate it has the additional protection of hard, rubber plate and rubber gasket, as the coil displaces one of the batteries. Eight-cell holders are preferable for motorboat work, where the "make-and-break" form of ignition is used, for a much heavier spark is obtainable from eight-cell sets.

When coils are purchased at the same time as battery holder cabinet hard rubber plates will be equipped without additional charge. A third binding post will be provided so that coil may be cut into circuit independent of battery cells in cabinet. This is desirable where a boat has more than one source of ignition power, so that the coil can be used with any of them. Coils all have thumb nuts and may be used independently of battery holders if desired.

Strip Type Battery Holder, models A and B, are popular for motorboat use in place of the standard battery box if there is no good space in the boat where the box may be placed. The strip type holder may be screwed against a side partition by using the hinged brackets furnished with each, or may be screwed on the under surface of the partition, in which case brackets are not necessary.

The National Carbon Company, the manufacturers of the Columbia Dry Cell, are exclusive makers of Patterson Cartridge-Cell Units for Patterson Battery Sets, guaranteeing wide distribution of this cartridge unit to all parts of the United States and Canada.

Two types of Columbia Cartridge-Cell Units are made,—one, as shown in Figure 1-a Straight Screw Top Cell, which of course can be used only with Patterson Battery Holder, and (Fig. 2) a Combination Screw Top and Binding Post Cartridge-Cell unit which may be used either with the old-style system of wiring and with the removal of the two thumbscrews, converted instantly

Columbia screw top dry cell No. 6.

Combination screw top and binding post cell.

PATTERSON BATTERY SETS

WATERPROOF **WATERPROOF**

Combination Screw Top and Binding Post Cell

Straight Screw Top Cell

Patterson Battery Sets for Motor Boat Ignition *completely do away with battery troubles.*

No owner of a boat can afford to be without a **Patterson Battery.**

A Patterson Battery Set will *last a lifetime*—it is only necessary once a year to screw in a few Cartridge-Cells, which may be done in half a minute and tho' done quickly, by the most inexperienced person, *cannot be done wrong.*

Made in all sizes from $3.00 to $30.00. **Send for our Art Catalog No. 101.**

STANLEY & PATTERSON

SOLE MANUFACTURERS

NEW YORK, U. S. A.

NOTE: Don't forget in an emergency, the old style Binding Post Cell may be used in any **Patterson Battery Set.**

into a Cartridge-Cell Unit for use in a Patterson Battery Set.

The manufacturers of the Patterson Battery Sets, Stanley & Patterson, 23 Murray Street, New York, N. Y., guarantee absolute elimination of battery trouble in motorboats, and will be glad to send their art catalogue (No. 101) upon application.

A Real Waterproof "Slicker"

We are glad to acknowledge, wherever possible, any really good thing which comes to our notice. About four years ago a man in Chicago, named Armstrong, began manufacturing what is known as Impervo waterproof clothing. Outside of the manufacturer himself, possibly no one had any serious faith in a product which was claimed to combine lightness, durability and absolute waterproof qualities at the same time.

The manufacturer, however, in his firm conviction of having a product that would stand the test, went at convincing people in a manner that won him not only a good business, but practically the unofficial thanks of the yachting fraternity.

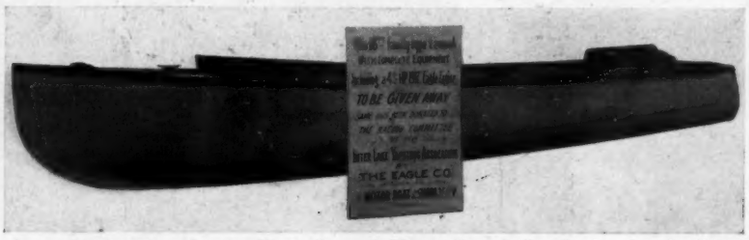
Commodore Day had so much faith in Impervo, through his former experience with it, that he equipped himself with an Impervo coat on his recent record trip across the Atlantic in his yawl Sea Bird. He said afterwards that Impervo was the means of keeping him dry when everything else failed.

Another remarkable feature about Impervo is that it does not contain a particle of rubber, as the manufacturer claims. At any rate it is worth investigation by those who can make use of such a product as this in their coming yachting expeditions.

Further particulars can be obtained by writing E. A. Armstrong, the manufacturer, 215 West Kinzie Street, Chicago, for catalogue and prices.

Something Doing at Put-in-Bay

The 16-foot family type launch equipped with 4½ H. P. 1912 Eagle engine presented to the racing committee of the Inter-Lake Yachting Association by The Motor Boat & Supply Company, of Cleveland, Ohio, and The Eagle Company of Newark, N. J., is attracting considerable interest on the Great Lakes, not so much from the gift in itself, which is a valuable outfit worth in the neighborhood of $300, but from the manner in which the gift is made.



A novel prize given by the Eagle Co. and Motor Boat & Supply Co. for the Inter-Lake Regatta.

Toward the end of the regatta week this prize boat will be run out into the lake about 2 miles from the starting line, when the engine will be started, the steering wheel lashed and all the crew will leave. The boat will be left without anyone aboard, running at full speed. The boats which will contest in the race will be handicapped according to their performance in the different races on the previous days, and they will be started on these handicaps. The boat which first overtakes and captures the prize will be the owner, and there are no other restrictions on taking possession of the same.

Both The Motor Boat & Supply Company, of Cleveland, Ohio, and The Eagle Company, manufacturers of the engine, have received numerous letters as to how the peculiar race will end. Many of the motorboat bugs have it all figured out just how much the thrash of the 16-footer's propeller will send her to port. However, Mr. Sutherland, of The Eagle Company, has neglected or refused to state just exactly which way the engine will operate, as to whether it will turn a right or left hand propeller, and at what speed the boat will run. He has advised that the boat will run anywhere from 8 to 12 miles an hour. Many suggestions have also been received as to how the race could be operated and the donators living up to the full specifications of their agreement, and still not lose possession of the boat. They have also received some letters proposing schemes whereby the boat could be rescued before being taken possession of by competitors in the race, but Mr. Sutherland assures us that the boat and operation, other than suggestions which he will make as to the contest, will be in the hands of the racing committee of the Inter-Lake Yachting Association, and the actual giving way or conducting of this novel race will be done by the racing committee.

The boat and engine will be on exhibition at the store of The Motor Boat & Supply Company, of 1411-1415 West 9th Street, Cleveland, Ohio. Any data as to the conducting of the race, the size of the boat and equipment, can be secured either from The Eagle Company, 98 Warren Street, Newark, N. J., or The Motor Boat & Supply Company, of Cleveland, Ohio, or the racing committee of the Inter-Lake Yachting Association.

Is Your 3 in One Aboard?

The advice given by the 3 in One Oil Company, not to "cast off, or hoist anchor for your first 1912 outing on the water without a bottle of 3 in One Oil aboard," is a good one. What's the use of having spent a lot of money overhauling your boat unless you keep her spick and span all summer—in the easy 3 in One way?

3 in One Oil is a preparation that absolutely prevents rust, tarnish and verdigris on your brass bell, binnacle and railings. It sinks into the minute pores of all kinds of metal surfaces—and forms a delicate "overcoat" which defies the effects of moisture, and of fresh or salt waves. It is said that 3 in One Oil will keep your varnished and veneered woodwork shining like new. It removes all the soil, scars and mars.

It's an ideal lubricant for locks, clocks, motors, fans, talking machines, guns, revolvers, and everything else on board that needs oiling, and it may be bought from all good dealers in three sizes of bottles.

The 3 in One Oil Company, 42 Broadway, New York, tell us they will gladly send all "sailormen" a generous *free* sample, and the 3 in One Dictionary. You better get the bottle and the book, *both free*, to-day.

No Need to Fear the Inspector

The Trimount Rotary Power Company, of 148 Pearl Street, Buffalo, N. Y., have recently placed on the market a new combination outfit of their Trimount Rotary Power Whistle, consisting of the rotary blower with their regular whistle; with a metal megaphone foghorn attachment and with an additional chime whistle. This makes a mighty convenient and powerful whistle equipment. The law requires that boats should have a foghorn as well as a whistle, and by this arrangement the whistle can be unscrewed and the horn substituted, not only complying with the law, but giving a horn with a sound-carrying strength in excess of most foghorns on the market operated mechanically. The third whistle has a different tone than the first, and can be easily attached by unscrewing the former and putting the chime whistle in its place. There is no question that when a boat wants a whistle or foghorn it wants it mighty badly, and it's no fun to see an ocean liner or a lumbering coasting schooner bearing down upon you from windward when all you have on board is a whistle with a squeak that can't be heard a boat's length away against the wind. Skippers of commercial vessels as a rule don't pay any too much attention to motorboats, and it is only by having something capable of making the skipper of such a craft realize the little vessel's presence, that safety is assured. It is false economy to save on equipment that means so much to the safety of the ship.

This device consists of a small rotary air blower, placed on a bed piece in the bottom of the boat and run by friction with the engine fly-wheel, thus forcing a strong current of air through a pipe or rubber tubing to the Trimount whistle, which may be placed in any part of the boat desired. A small upright lever is the means by which the driving wheel of the blower is brought in contact with the fly-wheel of the engine, a whistle cord being attached to it.

Sterling Wins in Florida Waters

For the fourth consecutive year Sterling-powered boats have won the principal events in the Florida motorboat regatta. This year the races were held over the St. Augustine course instead of at Palm Beach. In the free-for-all, 50-nautical miles, Jane S, a 32-footer, owned by Charles S. Smiley, of Clarksburg, W. Va., won both events and annexed the Southern Championship. During the regatta this boat won four first prizes and two seconds. She is powered with a six cylinder, 45-65 H. P. engine.

Diana powered with a 100 H. P. Sterling eight cylinders, won the 32-foot class race, defeating the Bug, Vita Jr., and other prominent boats. The Diana is a 32-foot displacement boat, owned by D. H. McMillan, of Jacksonville, Fla. During the regatta Sterlings won six out of a possible nine first prizes and four seconds.

Roberts Motors for Marine and Air Use

In addition to the regular line of 1912 Roberts motors for marine use, which show no radical changes since last year, it is interesting to know that this company is offering a line of Aerolight models for use wherever a light weight engine is required. Some of these are made extremely light for the power, the 60 H. P. six-cylinder weighing 365 pounds; a 75 H. P. six-cylinder weighing but 235 pounds, and a 125 H. P. model which weighs only 400 pounds. There are twenty-one models in the line ranging from 3 to 125 H. P.

YACHTING readers will be interested in knowing that Mr. E. W. Roberts, the authority on 2-cycle internal combustion engines, who has contributed a number of articles to this magazine, is responsible for all of the designs of the Roberts Motor Company. Mr. Roberts' experience in 2-cycle motor design enables him to present to the users of marine motors an engine of unquestioned efficiency. The 1912 catalogue of the Roberts motor may be had by addressing The Roberts Motor Co., Sandusky, O.

Propellers in a Nutshell

The Columbian Brass Foundry Co., of Freeport, L. I., have published a 1912 edition of "Propellers in a Nut-Shell." This is a little booklet containing a whole lot of information in regard to propellers and their theory. It has tables showing horsepower developed on the various sized wheels at different revolutions and a lot of other useful information for the boat owner. It has also a list of the Columbian propellers and motorboat fittings with types, sizes, pricelists, and so forth. Every motorboat owner should have one of these booklets, which may be had for the asking by writing the Columbian Brass Foundry Co., 208 North Main Street, Freeport, L. I., N. Y.

OUR NEW PLANT

QUICK DELIVERY

Is a Sure Result of

Central Location, Complete Stocks
Thorough Organization* and a *Modern Plant

This is the combination that enables us to reach promptly more boating centers than any other American supply house. We can save you hours, days and sometimes weeks of annoying and expensive delay.

Send 20c to cover postage on our
1912 550-page Marine Supply Catalogue No. 101
Full of interesting information and attractive prices. Your 20c will be refunded on your first order.

GEO·B·CARPENTER & CO.

430-440 WELLS STREET

CHICAGO, THE GREAT CENTRAL MARKET

Many of the most Important motor boat Races have been won with

HYDE TURBINE TYPE PROPELLERS

They are unexcelled in Design, Material and Workmanship

You can be sure of getting results with a

HYDE PROPELLER

WRITE FOR 1912 CATALOGUE

HYDE WINDLASS COMPANY :-: :-: :-: **Bath, Me.**

KYANIZE SPAR FINISH

The most durable outside varnish in the world

Resists salt air—will not turn white.

Thousands of gallons used by United States Navy.

Half-pint sample FREE if you mention this magazine

Boston Varnish Company

Everett Station, Boston

STEWART

Speedometer's word is good in court

When the judge fines you more than the cost of a *Stewart* it's too late to discover that you chose the wrong speedometer.

The *Stewart* can't tell a lie—it isn't built that way.

It represents maximum efficiency in speedometers. Other makes may cost more, not because they are better than the *Stewart*, but because their manufacturers make less of them.

You pay for all the business they don't do, when you pay more than the price of the *Stewart* Speedometer.

Four out of every five speedometers in use are *Stewarts*.

Magnetic principle, employed in 85 per cent of all speedometers, making possible the use of slow moving parts; no wear; ball and jewel bearings; beautiful workmanship; remarkably accurate; 100,000-mile season odometer; 100-mile trip register, can be set back to any tenth of a mile; positive drive; no springs; unbreakable flexible shaft; drop forged swivel joint that will outwear car; noiseless road wheel gears.

Speedometer Guaranteed for Five Years

Write for handsome 1912 catalog telling you why in our big factory we can make the best speedometer at the lowest price.

WRITE TODAY

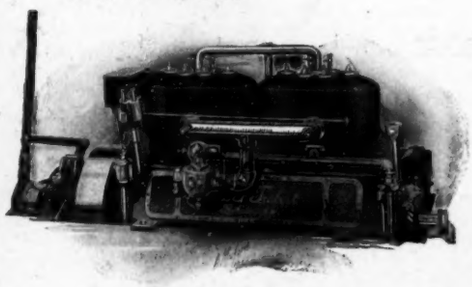
Speedometers, $15 to $30
Rim Wind, Clock Combinations, $45 to $70

Stewart & Clark Manufacturing Co.

1921 Diversey Boulevard, Chicago

Detroit Chicago San Francisco New York Cleveland
Boston Philadelphia Kansas City
Los Angeles Minneapolis Indianapolis London Paris

40 H. P. 4 Cylinders
60 H. P. 6 Cylinders
80 H. P. 4 Cylinders



POPPET VALVE TYPE

TREBERT RELIANCE PATENTED GASOLINE ENGINES

The Result of Fourteen Years' Experience

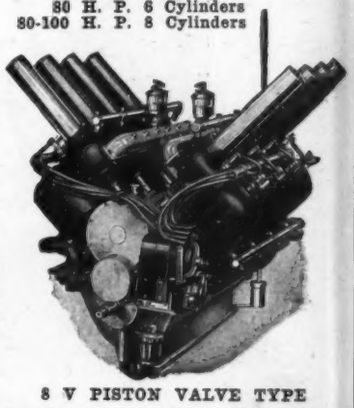
SOLD UNDER A POSITIVE GUARANTEE

1—The lightest engine of the bore and stroke whose light weight is not secured by the sacrifice of strength. Our lightness is secured through skillful design and the elimination of needless parts.

2—THE ENGINE WITH THE MINIMUM MECHANICAL RESISTANCE. In the Piston Valve motors one valve does the work of intake and exhaust thus eliminating 50% of the valve driving waste energy.

3—THE ENGINE FREE FROM VALVE TROUBLE. THERE ARE NO GRINDING VALVES. In the Piston Valve motors in case of loss of compression the valve can be lifted out and compression rings like those used in the pistons quickly and easily inserted.

60 H. P. 6 Cylinders
80 H. P. 6 Cylinders
80-100 H. P. 8 Cylinders



8 V PISTON VALVE TYPE

H. L. F. TREBERT ENGINE WORKS, 495 ST. PAUL STREET, ROCHESTER, NEW YORK
N. Y. Agents, Bowler, Holmes & Hecker, 141 Liberty St.

WALTHAM
8 DAY
TIMEPIECES

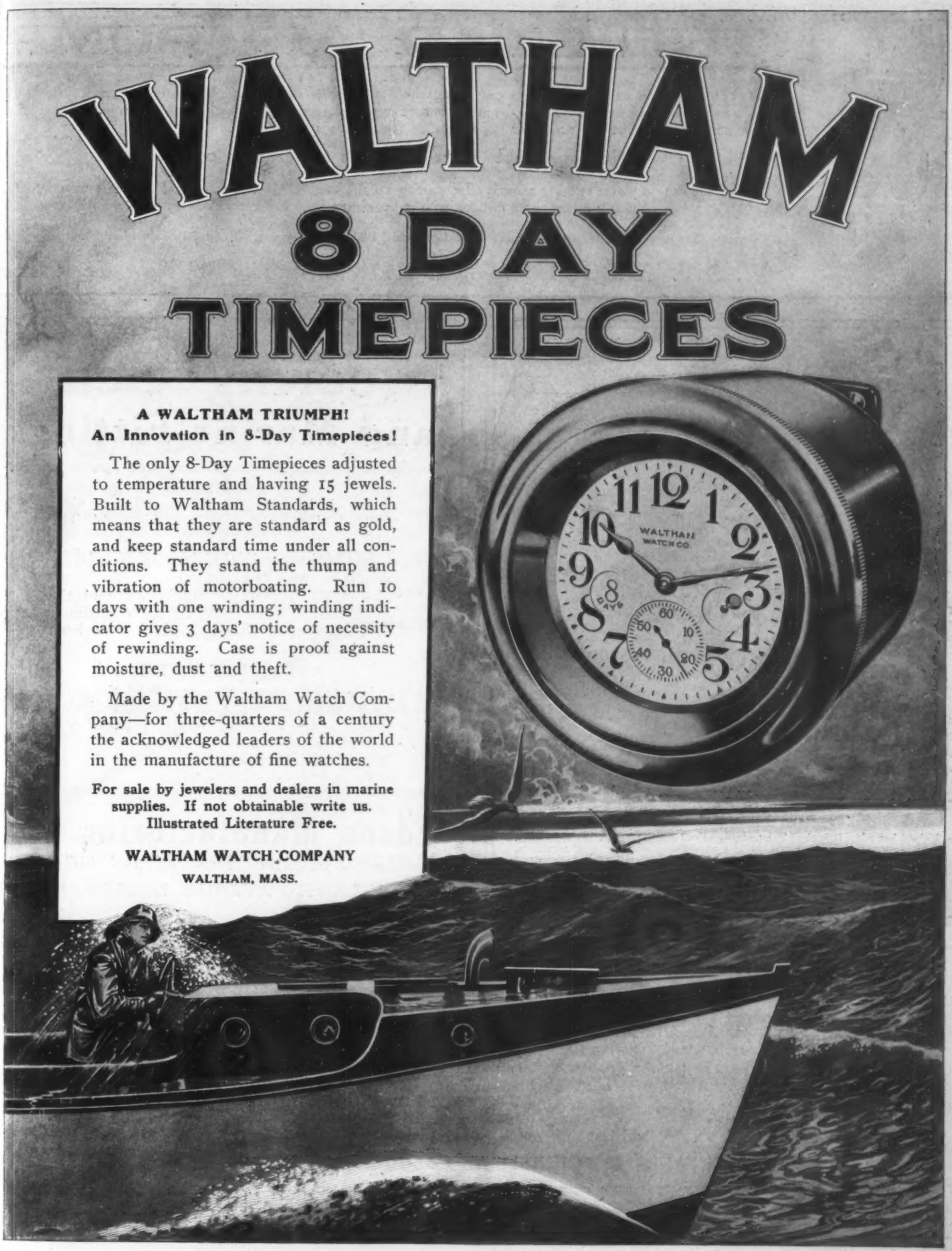
A WALTHAM TRIUMPH!
An Innovation in 8-Day Timepieces!

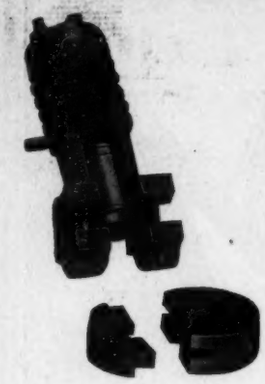
The only 8-Day Timepieces adjusted to temperature and having 15 jewels. Built to Waltham Standards, which means that they are standard as gold, and keep standard time under all conditions. They stand the thump and vibration of motorboating. Run 10 days with one winding; winding indicator gives 3 days' notice of necessity of rewinding. Case is proof against moisture, dust and theft.

Made by the Waltham Watch Company—for three-quarters of a century the acknowledged leaders of the world in the manufacture of fine watches.

For sale by jewelers and dealers in marine supplies. If not obtainable write us. Illustrated Literature Free.

WALTHAM WATCH COMPANY
WALTHAM, MASS.





THE STAR AIR PUMP

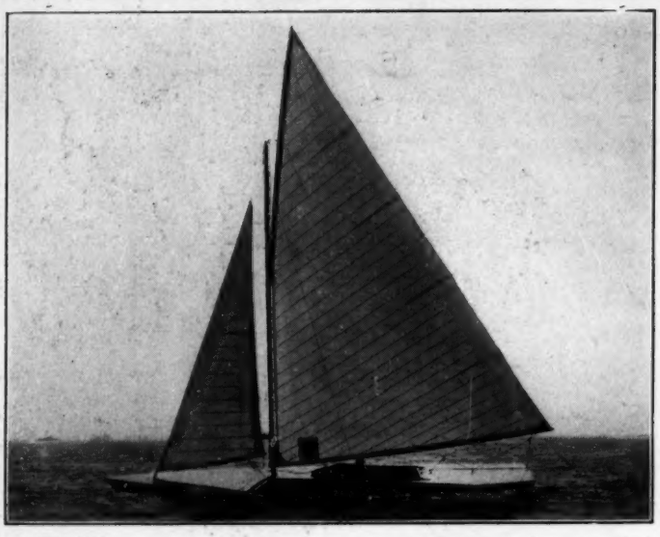
WITH split cam and hinged boxes can be attached to propeller shaft without uncoupling the shaft. Stroke 1½ inches, bore 1½ inches. This is the most compact air pump made. It is entirely out of the way, and the throw of a small lever puts it into action, or stops it, while the engine is running.

No appreciable extra power is required to operate

The whistle can be blown at thirty seconds after starting up the engine. It will pump a 10-gallon tank up to 60 pounds pressure in ten minutes, with the engine making 450 revolutions per minute.

Our new 1912 Marine Hardware Catalogue will be ready May 1st. Send 15 cents for postage

W. & J. TIEBOUT *MARINE HARDWARE* **118 Chambers St., New York City**



HARPOON *Owner, C. F. Adams 2nd*

By winning a series of three remarkable races, the Sonder boat, Harpoon, sailed by her owner, C. F. Adams, 2nd, defended the Quincy Cup against some of the best boats on the Atlantic Coast.

And she did this after laying in storage, with no tuning up, since last season, when she captured the Quincy Cup from the Boston Yacht Club and won the Taft Cup in the Spanish-American match at Marblehead.

Trade Mark Reg. U. S. Pat. Off.

LOWELL DUCK

Helped her win. It is the *closest, strongest and best setting* canvas for yachts.

Used by the Cup defenders, the 70's and 65-footers, the racing schooners, the 30's, 25's, Q class, 15-footers, the Sonder-class boats, and by the great majority of racing and winning yachts. Be sure to get Lowell Duck, made in two qualities:

REGULAR FOR CRUISING SPECIAL FOR RACING

BOSTON YARN COMPANY. Selling Agents, BOSTON, MASS.

Steering Gears and Marine Fittings

We designed and built the Meteor Gear for EMPEROR WILLIAM—YACHT METEOR.

His Majesty KING GEORGE V—BRITANNIA.

YACHT ETOILE FILANTE and the celebrated YACHT ATLANTIC, winner of the great OCEAN RACE, have been fitted with our gears.

AND MANY OTHERS

We trust we may be pardoned the pride in mentioning the above facts, believing that it is the result of over fifty years' conscientious efforts to produce the BEST MACHINERY in our line.

Edson Manufacturing Co.

Established Eighteen Hundred and Fifty-nine

260 ATLANTIC AVENUE, BOSTON, MASS.

INSIST THAT IT'S A HARTHAN

"THE HARTHAN PROPELLER" Reg. U. S. Pat. Off. (TRADE MARK on each blade)

DO NOT BUY AN IMITATION

The Reasons Why

THE GENUINE HARTHAN PROPELLERS

Are the most popular propellers on the market are
They make good wherever used.
They are made with extreme care.
Their pitch and balance are guaranteed.
The material in them is of the best.
And last, but not least, Prompt Shipments are Guaranteed.

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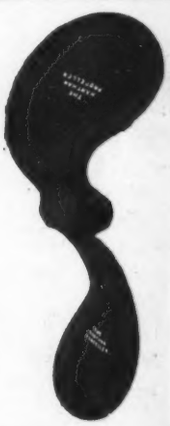
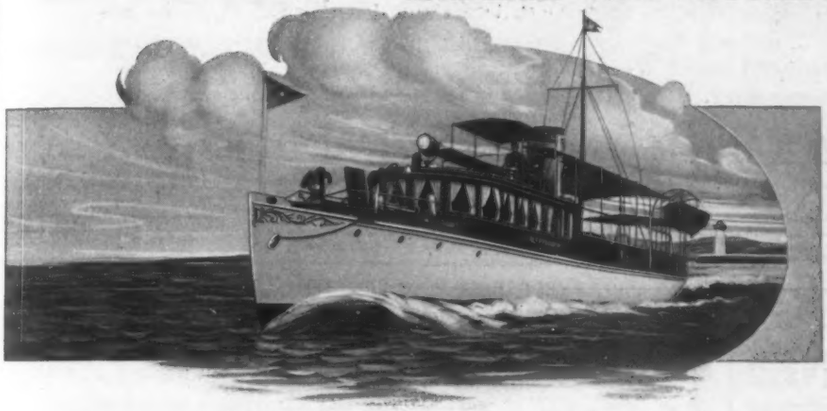


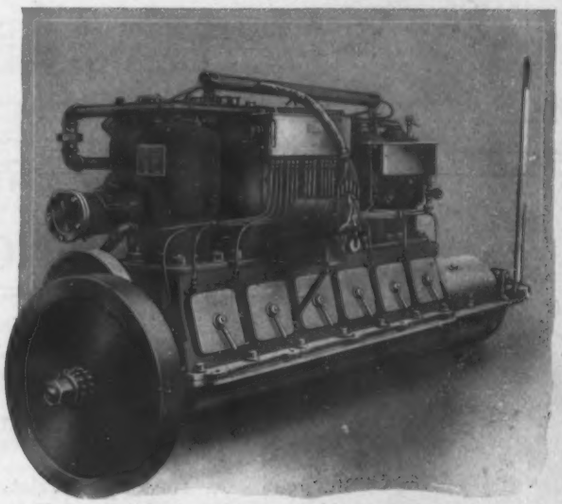
Speedway Still Without Equal

Gasoline Engines and Launches

ESTABLISHED WORLD WIDE FAME FOR EXCELLENCY

Yachts, Launches and Marine Machinery





THE FAMOUS **Speedway**

Gasoline Engine Embodies:

Absolute Dependability
Positive Control
Long Life. Easy Starting. Silent

GAS ENGINE & POWER CO. and CHARLES L. SEABURY & CO.
Consolidated
Constructors of the Highest Class of Marine Work.

Yards and Office: **Morris Heights, New York City**
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Your Yacht Needs

3 in One Oil because it is the only preparation on land or sea that prevents tarnish and verdigris on brass trimmings and parts and keeps them spick and span after cleaning.

3 in One also cleans and polishes all nickel parts and metal surfaces and absolutely prevents rust, on fresh or salt water, in any climate.

3 in One cleans and polishes veneered and varnished surfaces, removing all spots and scars and immediately restores the original lustre and bright finish to any fine woodwork.

Try for oiling motors, fans, electrical machinery, phonographs, guns, revolvers, all kinds of tools, etc. It is the only oil that lubricates "just right" and will not gum or collect dust.

FREE Write for generous sample bottle and 3 in One Dictionary, both free.

3 in One Oil Co.
27 Broadway, New York

SHIPMATE RANGES

8 SIZES 11 STYLES

Even if the engine balks, the batteries run out, or water gets into the gasoline, it is some satisfaction to know that you have a little Shipmate in the galley. Always reliable—fair weather or foul.

THE STAMFORD FOUNDRY COMPANY
Established 1830 STAMFORD, CONN.

Consult YACHTING'S Information Department on any of your problems. Its service is absolutely free.

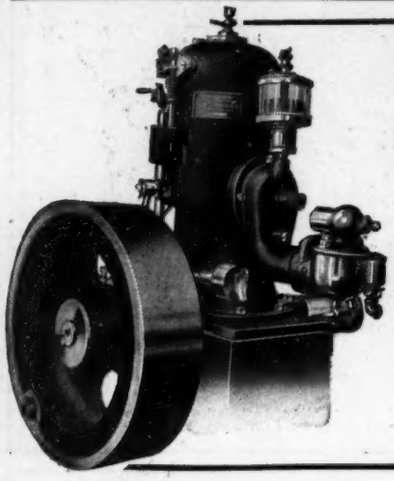
FOR YACHTSMEN

A Strictly High-Grade Binocular is an Essential Accessory

We guarantee OUR STEREO-VISIOSCOPE, PRICE $33.75, to be one of the Finest and Most Satisfactory glasses for Yachtsmen ever produced, irrespective of cost. We solicit comparison for quality. The price, $33.75, tells its own story. We shall be pleased to send advertising literature on request.

PINKHAM & SMITH COMPANY

288-290 Boylston Street BOSTON, MASSACHUSETTS 13½ Bromfield Street



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2-CYCLE MARINE **ENGINES**

Made in Single and Double Cylinders
Thoroughly Guaranteed in Every Way

5 Sizes from 3 to 10 H.P.

ASK FOR CATALOG *"M"* and PRICES

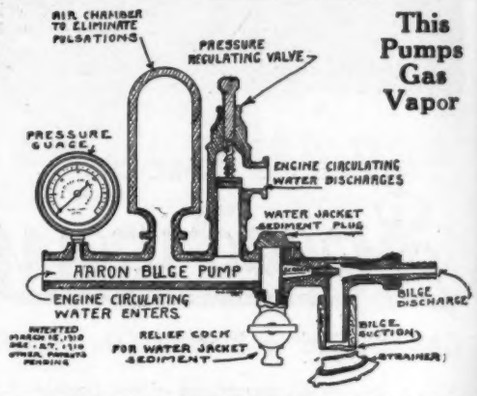
The Gray & Prior Machine Co.
656 Suffield Street
HARTFORD, CONN., U. S. A.
Portland, Maine, Branch: 117 Commercial Street

NO MORE EXPLOSIONS ON GASOLINE BOATS IF YOU HAVE AN

AARON AUTOMATIC

Bilge Pump

This Pumps Gas Vapor



AARON AUTOMATIC BILGE PUMP CO.
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THE MECHANICAL WATCHMAN FOR MOTOR DRIVEN CRAFT

JAMES CRAIG, 807-841 Garfield Avenue
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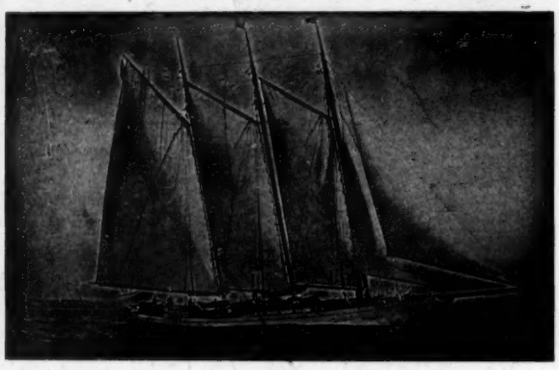


"AZARA." 85 ft. W. L. Equipped with CRAIG ENGINE and FEATHERING PROPELLER

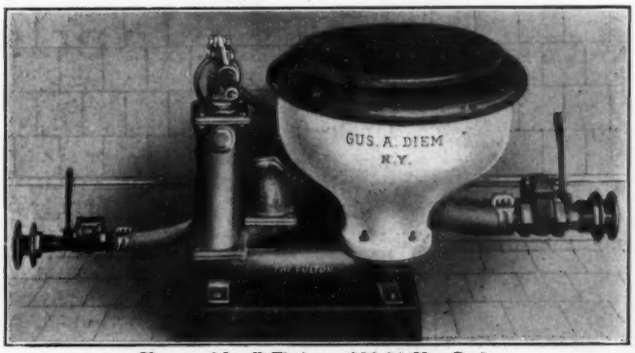
Designer and Constructor of

MARINE GAS ENGINES

Feathering Propellers and Special Mechanisms

INSTALL IT YOURSELF With My Patented Outboard Connections (it's so easy)

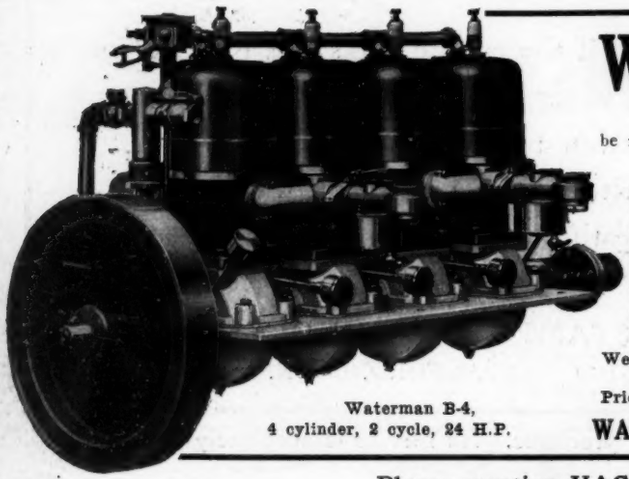
NONE BETTER



NONE BETTER

Closet with all Fittings, $31.00 Net Cash

GUS. A. DIEM, 20 Fulton St., New York City



Waterman B-4,
4 cylinder, 2 cycle, 24 H.P.

Waterman Speed Motors

Ideal for All-Around Service Guaranteed for Life

The many individual features of the Waterman Motors make them the ideal motors. Any canoe can be readily converted into a speedy power canoe with our Model K.

READ THE SPECIFICATIONS

Spun copper WATER JACKETS; tough aluminum alloy CRANK CASE; drop-forged CRANK SHAFT of a special steel; BEARINGS extremely long and lined with our special bearing metal; CYLINDERS and PISTONS of our regular close-grained cylinder iron; PISTON RINGS of a special formula, mixed for piston rings and nothing else; PUMP of bronze (the plunger type); WATER MANIFOLDS and PIPING of brass and built up by our lock joint system—avoiding all bulky unions and hose connections. We use our own TIMER of the positive ball contact type, driven by DIE CAST GEARS of special composition—noiseless and long wearing. EXHAUST MANIFOLDS on the 2 and 4 cylinder B are WATER JACKETED their entire length and are so arranged that after the water has circulated through this jacket some or all of it may be piped overboard or it may all be carried into the exhaust. We also furnish sight feed lubricators on the intake manifolds for emergency use.

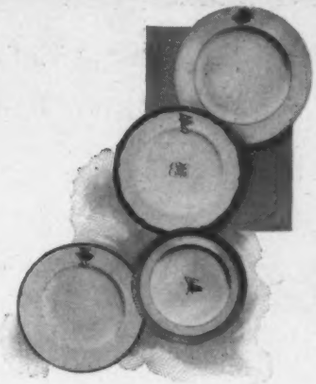
We make three models of the Waterman Motors, 1, 2 and 4 cylinders, ranging in power from 6 to 24 horsepower.

Prices within reach of all. Write immediately for our new catalog. Get all the facts.

WATERMAN MARINE MOTOR COMPANY, 1541 W. Fort Street, Detroit, Michigan

HIGGINS & SEITER

LARGEST CHINA AND GLASS RETAILERS IN THE WORLD



Decorated Table Services

For Yachts of Every Type

In these days of widespread entertaining aboard ship, not only has the special table service become a necessity, but most boat owners demand decorations that show the private or club emblems.

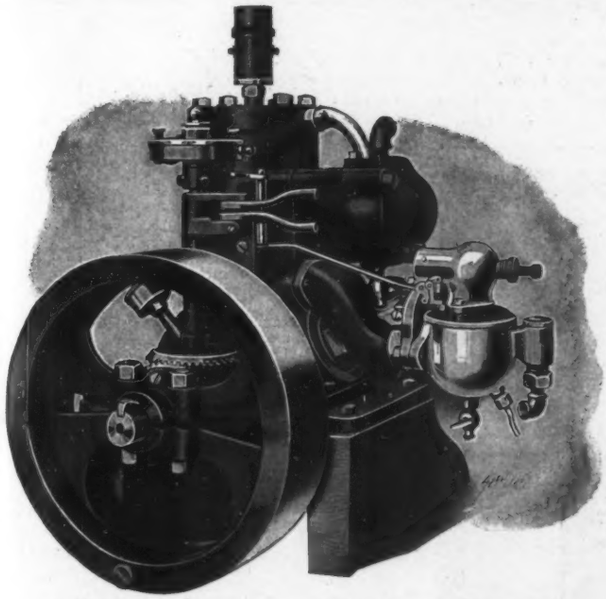
This fact emphasizes the importance of the HIGGINS & SEITER Yacht Department for supplying just such designs—exact copies or original interpretations of the Owner's Monogram, Private Signal or Colors, or Club Insignia.

As in China and Glassware, our prices for Decorated Services average "One-quarter less than Elsewhere."

We will gladly submit a specimen Plate or Goblet decorated with any design, together with estimate—*free of charge* and *without entailing any obligation to buy.*

All Boat Owners should have our Illustrated Yacht Booklet—Sent on request.

West 21st and 22d Streets (Just East of Sixth Avenue) New York



3 H. P. ENGINE

as above complete with Black Eagle Spark Plug, Connecticut Timer, Schebler Carburetor with hardened steel ratchet control for Timer, Carburetor Throttle, Flange Coupling, Ball Thrust G B E T Bearings, Bronze Plunger Pump

$53.40

Engle Engines are made in eighteen different models one to four cylinder, either Jump Spark or Make and Break.

THE EAGLE COMPANY, 98 Warren St., Newark, N. J.

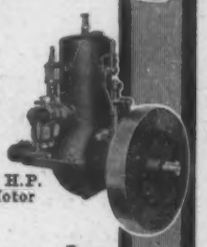
"Extra Efficiency" Northwestern Motors

These Engines Are Made in the Most Modern Engine Plant in the World

Northwestern motors are in use in every country in the world. They are in the fishing service on the Atlantic and Pacific Coasts in America, in Finland, Sweden, Norway, Holland, Belgium, Spain, Italy, etc., also in most of the South American Republics, in Hawaii, New Zealand, Australia, and the East Indies.

They are installed in Police and Government boats in some of the largest cities. Thousands of pleasure boats everywhere are equipped with the powerful and reliable Northwestern High Duty Engines. The largest boat builders throughout the United States are specifying these motors in their stock boats.

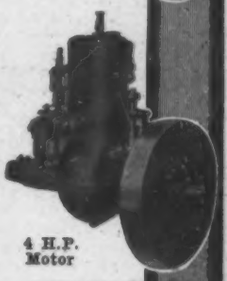
2 H.P. Motor



3 H.P. Motor

2 H. P. Northwestern Motor, $39

The most startling engine offer ever made—a real engine, big and powerful, and not a toy in any sense. Compares in weight, workmanship and efficiency with engines costing nearly double. Do not confuse this engine with many of the cheap makes advertised at so much per pound. It is furnished complete, ready to install in your boat, including electric equipment, two propellers, shafting, stuffing box, wiring, switch, etc.



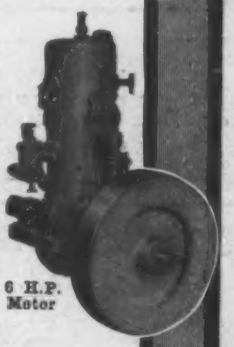
4 H.P. Motor

3, 4, 6, 10, 20 H. P. Motors At Proportionately Low Prices, Depending on the Equipment Desired

Northwestern Engines are strictly high duty, high grade in every respect, and can be furnished with practically any equipment desired, such as Reverse Gears, Reversing Propellers, Special Wico Ignitor, Magnetos, or Perfex Water-proof Ignition System.

THIRTY DAYS' TRIAL

We have a special proposition that we are going to make during the season of 1912, that will enable purchasers to try the engine out thoroughly at our risk, and if not absolutely satisfactory after thirty days of the most severe trial, can be returned and money will be refunded without quibbling.



6 H.P. Motor

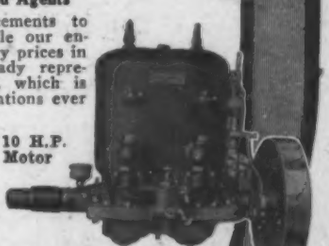
Gas-Tight Bearings

Northwestern Engines are manufactured under Government patents No. 948790, and are the only two-cycle engines in the world made with absolutely gas-tight bearings in the crank case, one of the most valuable inventions in gasoline engine construction of modern times.

Special Prices to Boat Builders and Agents

We are giving splendid inducements to boat builders and agents to handle our engines, and quote special introductory prices in localities where we are not already represented. Write for 1912 Catalog, which is one of the most magnificent publications ever published.

Stationary Engines
We also make a complete line of Stationary Engines, 2 to 12 H.P. Write for description.



10 H.P. Motor

Northwestern Steel & Iron Works
302 Spring Street, Eau Claire, Wis.

Since the decision rendered by the United States Supreme Court, it has been decided by the Monks hereafter to bottle

CHARTREUSE

(Liqueur Pères Chartreux)

both being identically the same article, under a combination label representing the old and the new labels, and in the old style of bottle bearing the Monks' familiar insignia, as shown in this advertisement.

According to the decision of the U. S. Supreme Court, handed down by Mr. Justice Hughes on May 29th, 1911, no one but the Carthusian Monks (Pères Chartreux) is entitled to use the word CHARTREUSE as the name or designation of a Liqueur, so their victory in the suit against the Cusenier Company, representing M. Henri Lecouturier, the Liquidator appointed by the French Courts, and his successors, the Compagnie Fermiere de la Grande Chartreuse, is complete.

The Carthusian Monks (Pères Chartreux), and they alone, have the formula or recipe of the secret process employed in the manufacture of the genuine Chartreuse, and have never parted with it. There is no genuine Chartreuse save that made by them at Tarragona, Spain.

At first-class Wine Merchants, Grocers, Hotels, Cafés.
Bätjer & Co., 45 Broadway, New York, N. Y.
Sole Agents for United States.

BONNEY DORIES, $59

16 feet x 5 feet beam, complete rig.
18 feet x 5 feet beam, $65 and $70.
19 feet x 5 feet 6 inches, $90, decked, $115.
21 feet x 5 feet 8 inches beam, decked, $140.
Send for circular. Order early for delivery.
JOHN C. G. BONNEY
21 Platt Street New York

VAN BLERCK MOTORS

SPEED AND MEDIUM DUTY

High speed types, 4 and 6 cylinders; 40 to 80 H. P.
Medium duty types, 2 4 and 6 cylinders; 12 to 50 H. P.
Catalog on request
Van Blerck Motor Co., 35 Hibbard Ave., Detroit, Mich.

BREESE & BREESE

Designers and Builders
Motor Boats and Gas Engines
Hydroplanes
38 East 23d Street New York City

Dayton Electric Launch Lighting Outfits

are made in all sizes, for all styles of motor boats. Just turn a switch and the light is there. Send for our free book today.
The Dayton Electrical Mfg. Company
99 St. Clair St. Dayton, Ohio

Best of All,

HUNTER WHISKEY HIGH-BALL

Sold at all first-class cafes and by jobbers.
WM. LANAHAN & SON, Baltimore, Md.

How to Build a 20-Foot Hydroplane

(Continued from page 407)

Fasten it to the timber with screws, and then run the controls from the engine to it.

The rudder should be made of either oak or mahogany, to the measurements shown in the drawing, out of wood about ¾ inch thick; but it should be tapered forward and aft to about ⅜ inch. A bronze rudder may be used and several suitable styles can be purchased in stock pattern.

Now turn the hull on the side, or raise it so that you can work under it, and get out a piece of ½-inch oak that will just fit in this space under the bottom planking where the side plank projects below the bottom, forming the pocket. Fit this oak in from the step to the stern, and rivet it fast to the planking so that it will strengthen the sides of the pocket, so that they will not split if you hit an obstruction.

The seams have all to be calked and puttied. The calking should be done with lamp wick and a calking wheel, as the seams are too thin to use the regular calking iron and mallet. Be careful when you are calking not to go through the seam with the cotton, breaking it out on the inside.

Get some coarse sandpaper and a block of wood that will fit your hand, fold the paper around it and sandpaper the bottom until it is as smooth as if it had been made from one piece. Finish off with a finer grade of paper, and either paint or varnish the bottom. The topsides have got to be put through the same operation, and then the boat will be ready for the cleats, ventilator, steering gear and other fittings that need no description here.

The strut to hold the after end of your propeller shaft will have to be made to fit the rake of your shaft, and as the rake depends upon the engine you use I cannot give you the measurements for this. The strut should have some means of supporting the rudder at the lower end and about half way up.

The seats, flooring, etc., are all so simple that there is no need of describing how to fit them, so I will leave you with the hope that Moccasin, as I have christened her, will show her stern board to the rest of them wherever she goes.

The Table of Scantlings is as follows:

Keel, Oak, Sided, 2½ inches, moulded as per measurements on mould drawings.
Stem, Stern Knees, Sided 2½ inches, moulded as per drawings. Oak.
Stern Board, Oak, 1 inch thick.
Moulds, Spruce, ¾ inch thick.
Sheer Stringer, Oak or Spruce, 2½x1 inch.
Chine Stringer, Oak or Spruce, 2x1 inch.
Bottom Stringer, Oak or Spruce, 1x1.
Keel Batten, Oak, 1¼x2 inches.
Step Piece, Oak, 8x1 inch.
Step Knees, Oak, sided 1 inch.
Planking, Cypress, cedar, mahogany or Spanish cedar, ⅛ inch on bottom, ⅛ inch thick on topsides.
Timbers or Frames, Oak, ¾x1 inch.
Floor Timbers, Oak, ¾ inch thick.
Engine Bed Stringers, Oak or Spruce, 1¼x4 inches.
Engine Bed, Oak, 2½x8 inches.
Coaming, Oak, ¾ inch thick, 3 inches wide forward, 6 inches aft.
Ridge Pole, Spruce, 1x1½ inches.
Decks, Cedar or other planking wood, ¼ inch thick, canvas covered.
Rudder, Oak, ¾ inch thick.
Seats, Oak, ¾ inch thick.
Flooring, Oak or White Pine, ⅝ inch thick.
Filling Piece on pocket sides, Oak, ½ inch thick.
Moulding, Oak or Mahogany, ¾ inch, half round.
Tank, Circular, 10 to 20 gallons capacity.

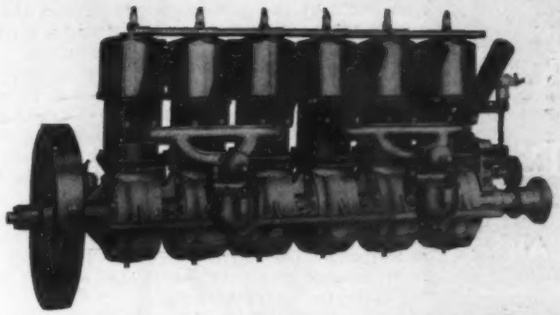
Southward Along the Pacific Coast

(Continued from page 421)

as clean as a whistle. Luckily the wind held, else we might have remained prisoners in the weeds without hope of drifting out.

Beyond, we came upon the well marked Bay of San Diego and sailed up to the yacht club, the members of which have secured an old steamer as quarters, and fitted it out with every convenience so that it makes an ideal club house.

The weather gods were kind to us in the early part of the return voyage. The wind swung around to the south, and with balmy weather



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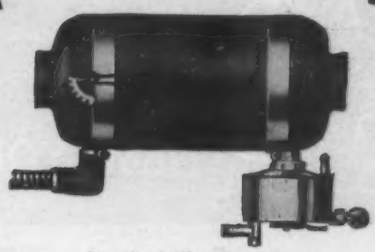

Attached like a muffler.

The experiment illustrated above shows the actual results of a steady 10-hour run of a 50 h.p. engine, first with gasoline, then with the Kerosene Gas Producer and kerosene. The Kerosene Gas Producer develops the same power and efficiency as gasoline at a saving of $4.83 for the day's work. This pays for the Producer and leaves a snug profit in less than a month.

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4. Two or four cycle.....
5. Are exhaust and intake on opposite sides.....
6. Speed, R.P.M.....
7. Lowest revolutions per minute.....
8. Highest revolutions per minute.....
9. Bore .....
10. Stroke .....
11. Diameter of inlet pipe.....
12. Diameter of manifold exhaust port.....
13. Make of carburetor.....
14. Size of carburetor.....
15. Rated Horse-Power .....

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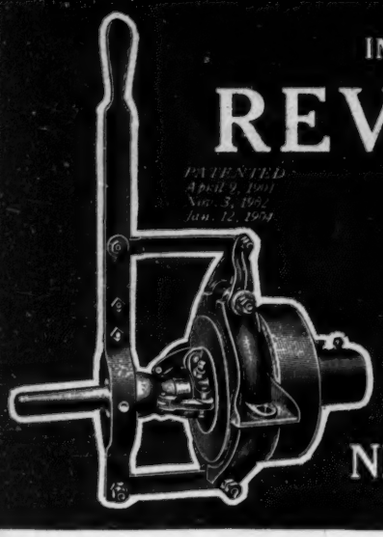

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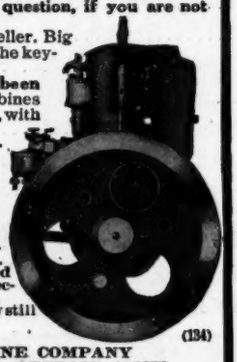

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smooth sea, and leading breezes we made the run to San Pedro in 27 hours. It was dusk when we rounded the new breakwater now being constructed by the government to protect the harbor, and before nightfall we had found a comfortable berth off the South Coast Yacht Club.

I had decided on the stop principally to reprovision the boat, as we intended to make no other port on the way back, so the next morning, after hurrying through the marketing, we were towed out to the breakwater by the club launch, and started out to round Point Firmin long before noon.

Yankee crept northward at snail's pace. A whole day elapsed before she entered the Santa Barbara Channel, and here we hung for another 24 hours in an almost dead calm. Then the barometer began to drop.

"Looks like plenty of action in the near future," said the weather-wise Charles, scanning the horizon with binoculars. "It's going to come out of the nor'west and blow blue guns, or I'm a Dutchman. And if it does—well, you old sea dogs know what it means to beat up against heavy wind and sea in the immediate neighborhood of Conception."

We did know, or we would have learned soon after. The breeze started with well-behaved moderation, but it gathered strength steadily until by sundown it was whistling through the rigging to a lively little tune that spelled "gale."

The sea made up fast as it does off Conception, and night caught us threshing into it at terrific speed, with rail buried, deck awash, and everything straining to the breaking point. It was a weird and wonderful sensation in the inky blackness around us to feel the boat crash with irresistible force through the battering waves.

Even the most seaworthy ships have their limitations, however, and toward midnight conditions became so bad that Yankee began to wallow and labor. Smothered under full canvas she was heeled at such an angle that she could no longer rise quickly, and the enormous seas breaking over the bow raked her fore and aft, pouring into the cockpit in great streams.

I had hesitated to shorten canvas, because I knew full well what it meant to reef in the dark, in such weather, nearly 2,000 feet of sail, particularly with a small crew of three. I had gone on, hoping against hope, that the wind might slacken. But now the time had come for action. It was madness to delay any longer.

"All hands on deck to reef!" I bellowed down the companion, and in a second the others were beside me.

"One, or two?" shouted the mate in my ear, for the shriek of the wind was deafening.

"Double reef!" I yelled back, and we sprang to our places, tackling the big sail with frenzied energy. It was a Titan's task to gather it in! The boat tossed and pitched so fearfully that it was impossible to keep one's footing, and more than once we had to cling for dear life while a great comber swept over, drenching us to the skin. One interminable hour it took us to get the canvas stowed and then, soaking wet, with perspiration running in rivulets down our faces and completely exhausted, we crawled back into the cockpit.

Under shortened rig the Yankee pulled herself together and began to make better way. She rose well and although occasionally she still buried her nose in the huge seas, the cockpit was quite dry.

Dawn broke at last; the sky had cleared, but the gale still howled vengefully and white-capped waves stretched in every direction beyond sight.

We shook out the reefs before noon and, riding a long, easy swell, passed in succession Point Sur, Monterey Bay and Pigeon Point. At one o'clock the next morning we picked up the lightship off San Francisco, and just in time. Half an hour later a blinding fog had closed in about us, making it necessary to feel our way carefully, with one man constantly at the horn. It lifted further on, however, and uncovered Bonita Light dead ahead and Mile Rock over the starboard bow. We were home!

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ImpervO is the *most worn* of all waterproof clothing among yachtsmen, because it has more advantages than the ordinary kind, and none of their faults. It is the *strongest* clothing, yet the lightest and most comfortable to wear. It won't crack, peel or blister, and can be easily washed with soap and water. It will remain waterproof in the heaviest storms.

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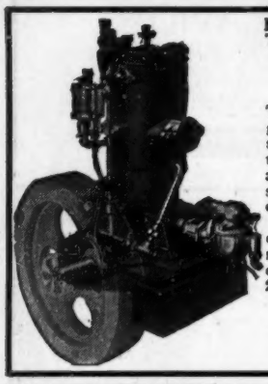

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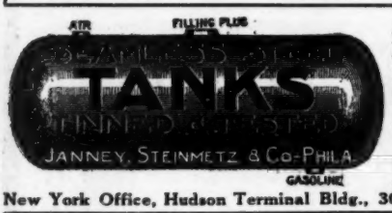

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Sappho

(Continued from page 395)

race was arranged with the Dauntless over an ocean course, the prize being a $250 cup, which the Sappho won easily. This brought the season of 1871 to a close.

The following year found the big schooner abroad once more, being entered for a race off Havre with the English schooners Guinevere and Livonia. The former was withdrawn, whereupon Mr. Douglass promptly withdrew his yacht, declining to sail against Mr. Ashbury, whose conduct since the cup races had disgusted American yachtsmen. However, the Yankee schooner hung around the starting line until the others had been gone for fifteen minutes and then went after the Livonia, running through her lee and reaching the finish an hour and a half ahead of the Britisher. Soon after this she was sold abroad and disappeared from American racing, though there were rumors of a challenge for the America's cup by her owner in the Centennial year. This report caused anxiety in this country, as there was then nothing here that could be depended upon to beat her, and she would have had an easy victory. However, the challenge did not materialize or the famous cup might have gone to Italy, where she was owned.

Apparently the Sappho was kept during her racing career very much as Bob Fish left her. She does not seem to have gone through with the frequent lengthenings that were so common in her time. In those days a racing yacht did not end her usefulness in a season or two, but raced year after year, with occasional changes in size as the owner's fancy dictated.

Her later history is not particularly glorious; she was sold on the other side of the water, being owned for some years, about 1883, by Prince Maffeo Sierra di Collona, of Rome. He sold her in England where she passed through several hands, her last owner being Mr. George Marvin, of Cowes. In Lloyd's Register for 1889 we find the sad note "broken up" opposite her name. So ends her story. A failure in the beginning of her life, the master hand of Bob Fish transformed her into a splendid success and her racing career was certainly a glorious one. But, in common with most of her sisters, she was finally outbuilt, degenerated into a cruiser, and at last met the fate that waits for the best of the fleet. Broken up—the lofty spars sold to some meaner craft, the white sails cut over for some dingy collier, the cabin fittings sold to a junkman and the shapely hull split to pieces for the metal of its fastenings—she has gone with the rest of that grand fleet of schooners of the sixties and seventies. To-day she is but a memory, but—"there were giants in those days."

Taking Care of the Motor Boat

(Continued from page 412)

They have full complement of lock, trips, etc., and bolt through the heavy fore-and-aft deck timbers with a chain scupper handy astern of the windlass to swallow the superfluous chain. I found this type of windlass to be the solution of the chain problem on motor boats where the owner is often deck hand, captain and engineer.

Getting the Most from Your Sails

(Continued from page 403)

down. With a sail set flying, slack the halyard and sheet enough to enable the man forward to unsnap the tack. If the regular jib has already been set to weather of the ballooner the latter can be lowered and easily gathered in to leeward. If the job is a very difficult one, bear away enough to blanket the sail—then it will flutter down very readily in lee of mainsail.

In racing prepare to take in or set your light sails while still a good distance from the mark. There is nothing gained by hasty work near a turning point. In running, there is a natural tendency to hang on to light sails till the last second. Unless you have a well-drilled crew, *don't do it.* It is far better to lose a few feet running and have everything snug and shipshape for the telling beat to windward.

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Waterproof Linen Braided Tiller Rope Containing Bronze Rope Centre

is made of the best grade of flax yarn, which is waterproofed and contains a bronze rope centre, made of a special analysis. This will outwear any other material as it will not chafe and has a greater wearing surface in passing over the sheaves. It will neither rust, shrink or stretch.

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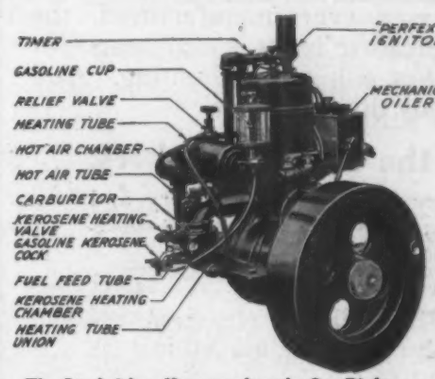

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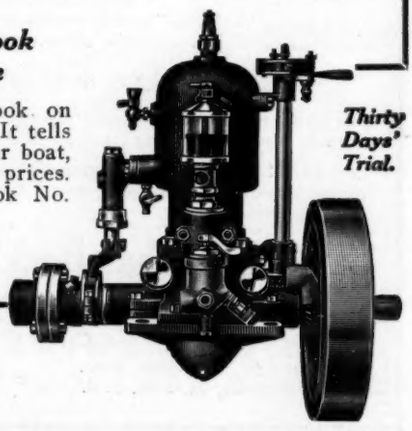

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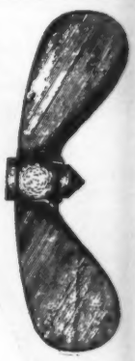

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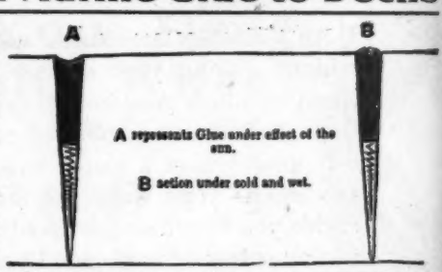

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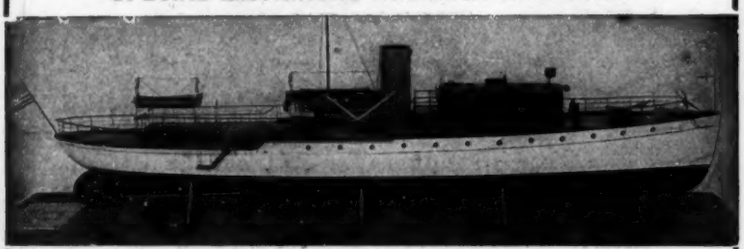

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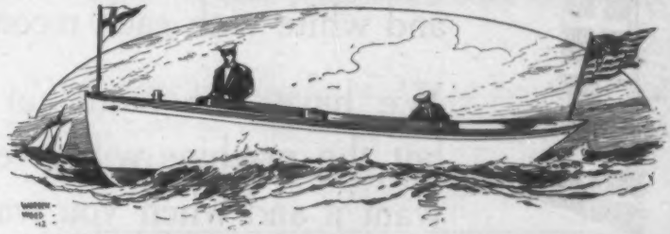

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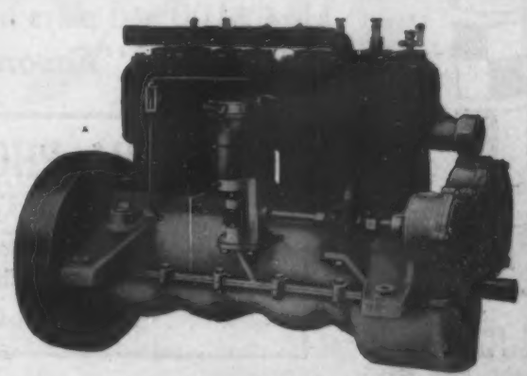

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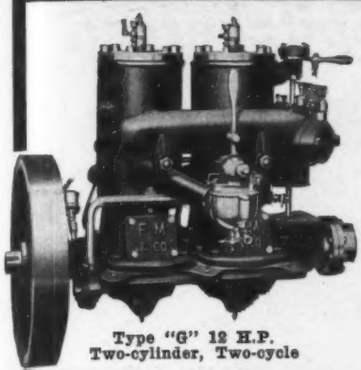

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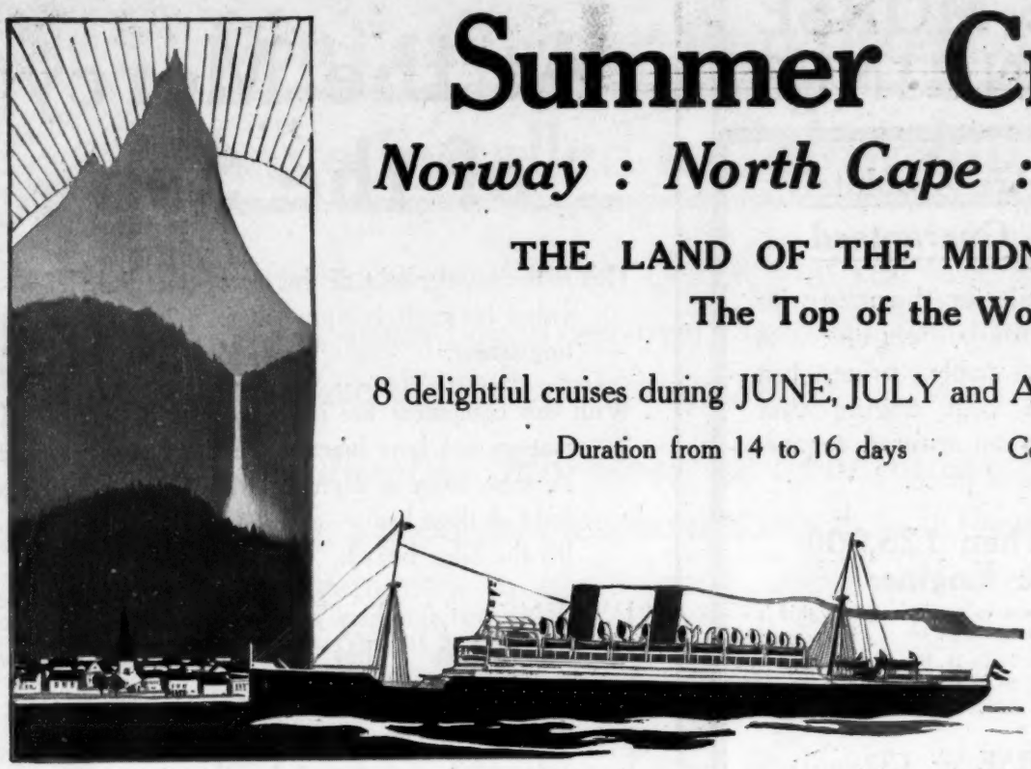

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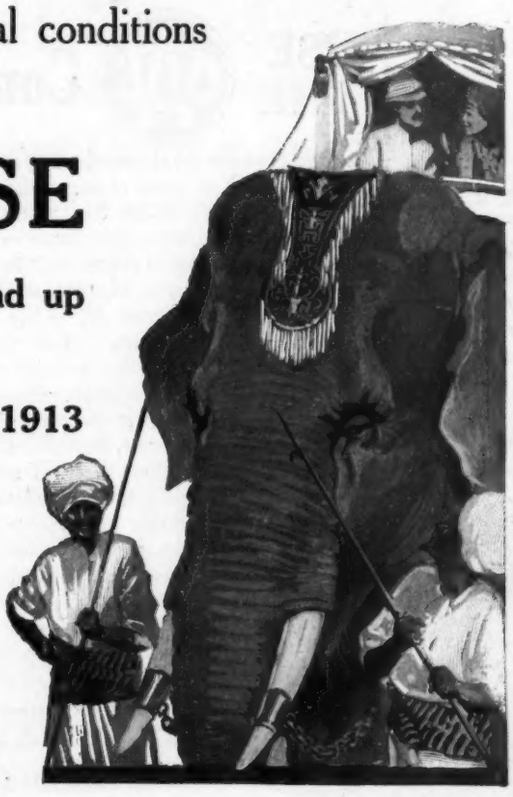

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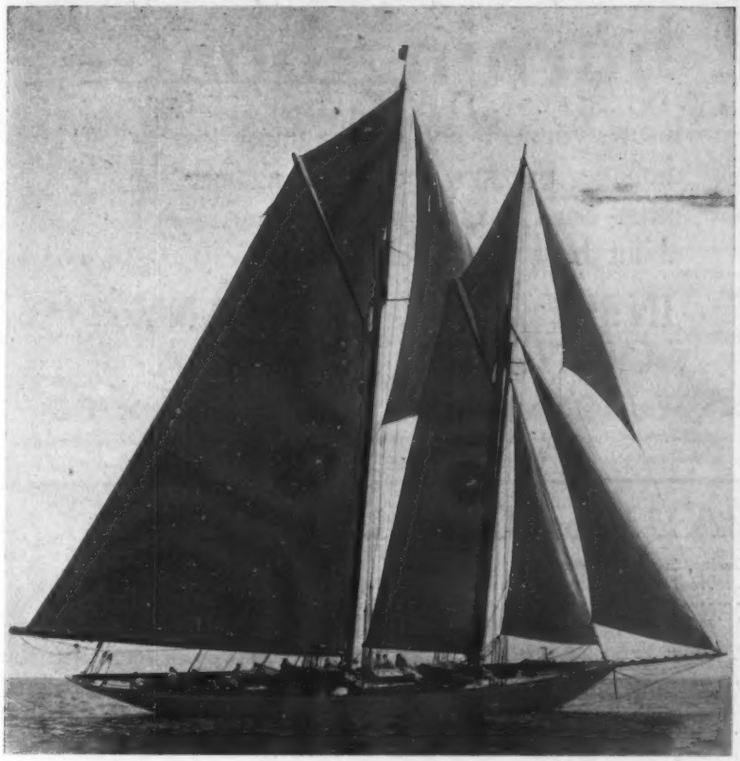

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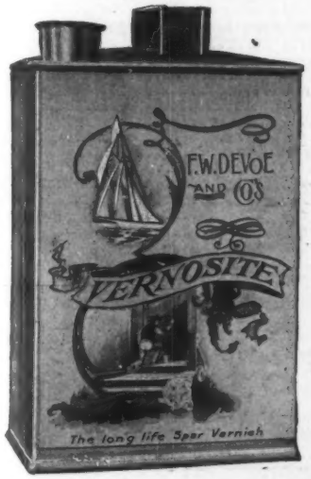

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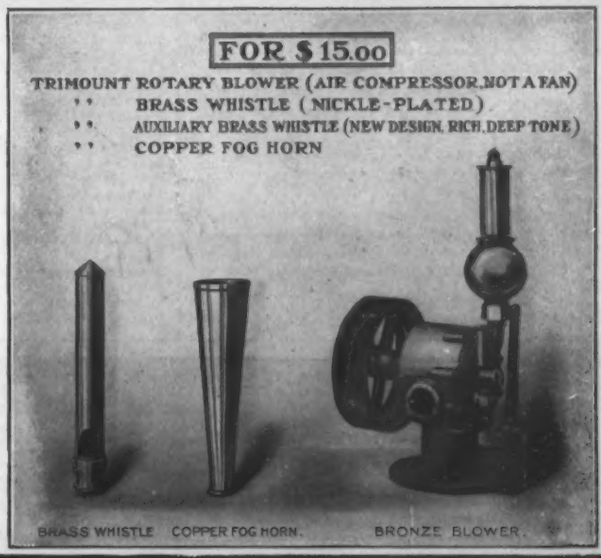
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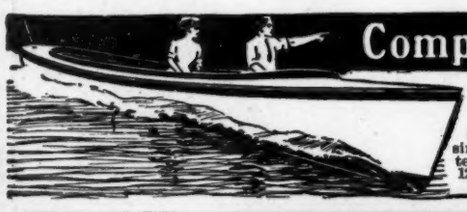

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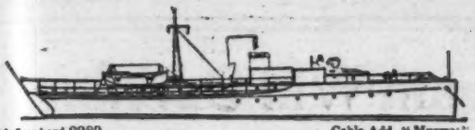

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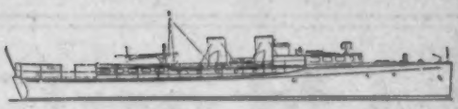

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